THE OIL WEEKLY

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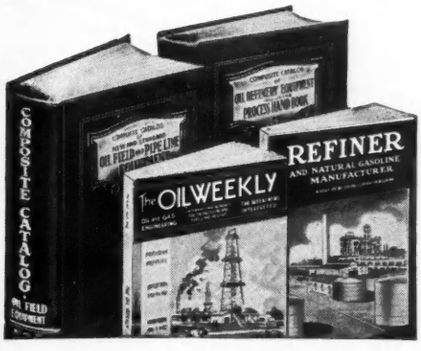

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The Oil Man's Calendar

DEC. 1–2	Mid-Continent Oil & Gas Assn., Standing Tax Committees, Dallas, Texas.
5–9	American Society of Mechanical Engineers, (Annual) New York.
7	Oil & Gas Association of Michigan, Mt. Pleasant, Michigan.
10	West-Central Texas Oil & Gas Association, Abilene, Texas.
MAR. 22–24	American Association of Petroleum Geologists, Oklahoma City, Okla.
APR. 13–14	National Petroleum Association, Cleveland, Ohio.
24–29	Oil-World Exposition, Houston, Texas.
MAY 3–5	Petroleum Electric Supply Association, Houston, Texas.
3–5	Petroleum Industry Electrical Association, Houston, Texas.

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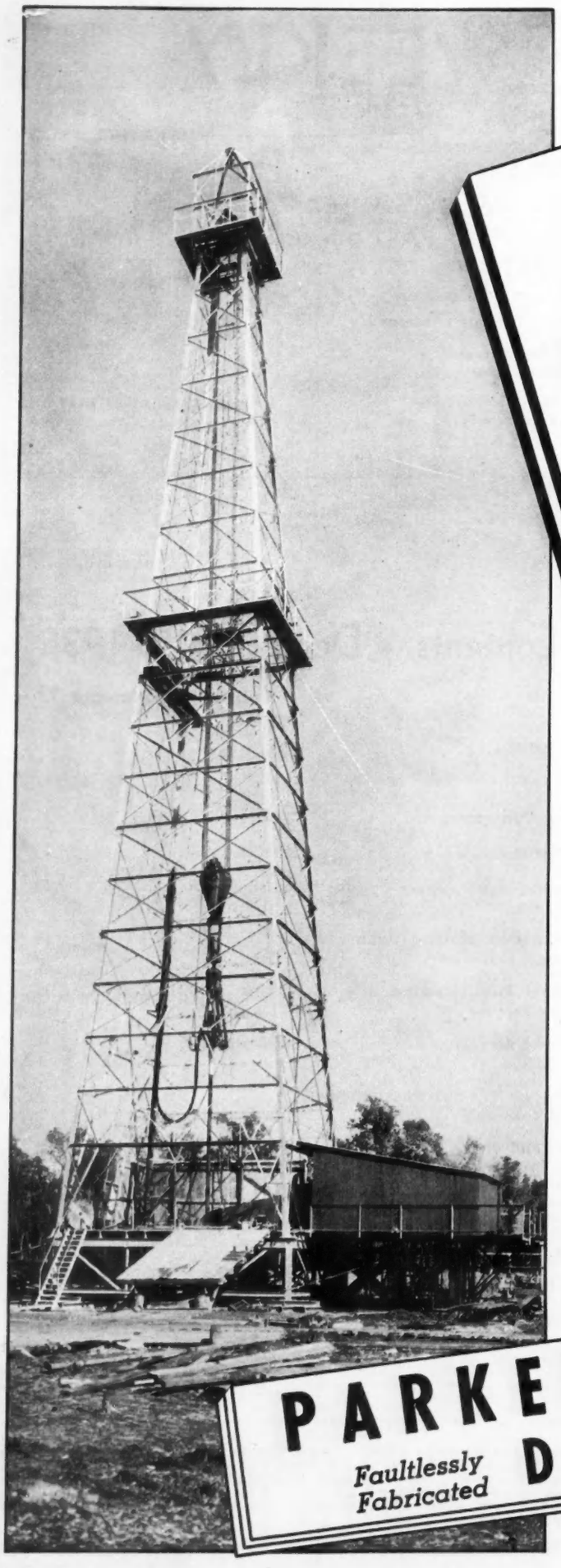

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This Week's Panorama

ERNEST O. THOMPSON, chairman of the Texas Railroad Commission and of the Interstate Oil Compact Commission, recently voiced an opinion with which many in the oil industry agree.

He asserted that 1939 should be "a crackerjack year" for the industry.

"It now looks," said he, "like there will be a 4 percent increase in consumption of oil over 1938, which is about equaling the all time peak year 1937."

Crude Stocks Studied

The above optimistic statement was made in connection with the announcement of the next monthly proration hearing at Austin, December 12.

That hearing will be one of unusual significance, as special witnesses and information will be introduced.

Thompson said that the proper level of oil stocks will be exhaustively considered at the Austin hearing and also at the subsequent meeting of the Interstate Oil Compact Commission at Fort Worth, December 14 and 15.

In connection with stocks, further advice of the Bureau of Mines is being sought, the bureau having recently issued a comprehensive report on the subject, following several years of study, which was undertaken at the request of the Interstate Oil Compact Commission.

Storage Believed Low Enough

Apparently, Thompson now is of the opinion that the present crude stocks are about as low as they should be.

Regarding the inventories, he said, "We believe we are going into 1939 in good shape."

He added that prospects are good for effective regulation of crude production in Illinois, Arkansas, and Louisiana in the future. (Some of the recent market difficulties have arisen out of heavy production in those states.)

"All in all," concluded Thompson, "things are looking good."

Views of Refiners Sought

In planning for the December 12 hearing of the Texas Railroad Commission, Chairman Thompson invited 48 refining division executives to attend.

He presumably wants their opinions regarding the proper level of crude stocks and also their views on henceforth meeting requirements altogether from current production, rather than taking part of the needed crude from storage, as in the past.

End of Withdrawals Urged

From another angle, also, there has come pressure for ceasing withdrawals from crude storage, to permit larger production. Tom Anglin, Oklahoma representative on the Interstate Oil Compact Commission, was in Washington recently and conferred with Bureau of Mines officials. To them he expressed the opinion that major purchasers of crude oil would soon begin taking more crude from current production and less from storage. He said he believed the current stock level of about 273,000,000 barrels was low enough and that the stocks should not be further reduced. Oklahoma would not have any further difficulties with proration, he said, if the purchasers would take all their requirements from current production instead of meeting part of their needs from stocks.

Stocks May Be Still Too High

While producers naturally would welcome a cessation of withdrawals from crude storage, there is some strong evidence that the stocks may be still too large to permit firm markets for either crude or refined oils.

The recent market difficulties and price reductions showed, for instance, that purchasers were not eager to take all the oils that were being offered.

Furthermore, the Bureau of Mines, in its report of two months ago on crude stocks, advanced the opinion that the industry actually needed in storage no more than 200,000,000 to 250,000,000 barrels of crude oil, whereas the current stocks amount to about 273,000,000 barrels.

Monopoly Investigation Begins

The oil industry observes with interest the hearings begun last week at Washington by the National Economic Committee, popularly known as the monopoly investigation committee.

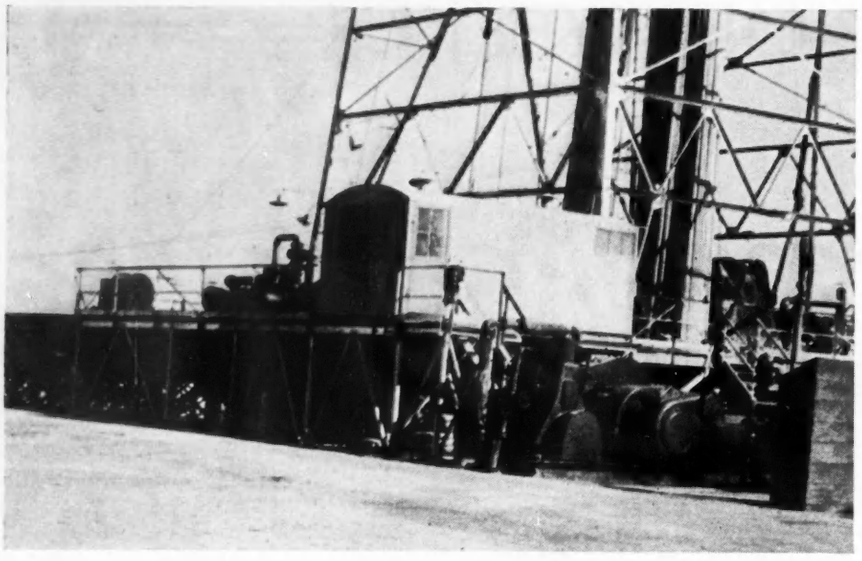
For early in the hearings, the petroleum industry is due to come under special consideration.

It has been stressed that the investigations of the committee are to be factual, not political; that the group will endeavor to make constructive recommendations to Congress, regarding legislation affecting business, and not act as a grand jury. Apparently, to help put over that idea, the committee will early consider the motor industry, which is expected to present a picture favorable to business.

The committee is composed of six members of Congress (three from each house) and six representatives of the executive branch of the government.

The investigation possibly will consume two years, and it will involve close scrutiny of the whole economic system. Particular attention will be given to alleged monopolistic tendencies, concentration of business in large companies, prices, and the effect of government policies on business.

The first several days of the hearings will be devoted to introduction of general statistical data on American business, past and present. Then informa-



This streamlined dog house really brings all the comforts of home to Continental Oil Company's drilling crews in the Wasco field of California. It contains individual lockers and other facilities. It may be dismantled or reassembled easily and quickly.

tion will be submitted on the pooling of patents in the automobile and glass industries. In that connection, it is said that pooling of patents has materially helped to maintain competition. These matters are expected to keep the committee busy until Christmas.

Oil Witnesses to be Heard

Fairly early in the hearings, however, oil industry witnesses are likely to be called.

The anti-trust division of the Department of Justice has been assigned the task of presenting information on the oil industry. For that division has prosecuted numerous anti-trust oil cases and in recent years it has been almost continuously investigating complaints about practices in the oil industry. Because of much work, the division recently added about 50 attorneys and economists to its staff.

The investigation of the oil industry is expected to involve study of numerous important subjects, such as conservation of a natural resource, effect of proration on price, competition among large and small companies, relationships between parent and subsidiary companies, pooling of patents, regulation of pipe lines, marketing practices, and so forth.

Oil Industry on Defensive

Despite the assurances that the investigation is not intended to lead to prosecutions on charges of violating anti-trust laws, there is some skepticism in the oil industry. For many times in the past, including the recent past, oil companies have been made the defendants in anti-trust cases; and such suits currently are in the courts.

It is a matter of record that the oil industry has been singled out by the government in anti-trust cases, although other industries have equally warranted investigations and possible prosecutions. But it has been explained that alleged violations of the laws have appeared more evident in the oil industry and that complaints from independents have been more prevalent and vigorous.

It has not been conceded, but is evident, furthermore, that the oil industry is a favored target politically in anti-monopoly campaigns. For the industry is commonly looked upon as rich, and the larger companies in it are regarded widely as typifying big business. And consequently, attacks against the large oil concerns, regardless of merit, make loud political thunder.

Illinois Assumes Important Position

Illinois continues to assume an increasingly important position. The state has had the most noteworthy increase among all districts in drilling, discoveries, and reserves. Likewise, its immediate future possibilities are considered bright.

The state's production has reached 100,000 barrels daily—a remarkable increase from the 5,000 barrels which were being produced 18 months ago and from the 20,000 barrels per day being recovered a year ago.

The 18 new Illinois Basin fields discovered the past 18 months are estimated to have a proven reserve of 300,000,000 barrels, whereas the entire state was credited with but 28,000,000 barrels on January 1, 1937.

Likewise, the most rapid expansion of drilling activity has taken place in Illinois. The first 10 months of this year saw the completion of 1,259 wells, or nearly six times as many as the 226 completed in the corresponding period last year. The state has had almost as many completions this year as Kansas, and about two-thirds as many as Oklahoma. Furthermore, the aggregate rated initial production of Illinois wells has practically equalled that of Oklahoma.

On November 1, there were 434 operations underway in the state, an increase of 20 percent during the month.

That Illinois is to continue to be an important producing and drilling region is shown by the present stage of field development. There have been 37,000 acres proven in the 18 new fields, but only 1456 wells have been completed. Therefore, without additional discoveries or extensions, on the basis of spacing patterns now being followed, present fields will require at least 3000 additional wells to develop just the known producing areas. Since it is expected that at least 235 wildcat tests will be drilled during the next year, it is not amiss to predict additional discoveries and the possibility that 5000 wells will be drilled in a relatively short period of time.

Oil Situation and Business Picture Promising

General recovery gives encouraging background for petroleum industry . . . Larger oil demand is in prospect, and better conditions prevail.

By L. J. LOGAN
Associate Editor

THE general business outlook remains distinctly promising, as conditions continue to improve and no early interruption of the rising trends is threatened.

It is widely believed that the recovery movement will proceed at least to the middle of 1939, and many expect good conditions for two years or so.

In so far as the general business background is concerned, therefore, the petroleum industry apparently can expect good results in the initial half of 1939.

General Business Good

Encouraging have been the monthly surveys of business conditions by the Federal Reserve Board, which have reflected vigorously increasing industrial activity.

The board's index of industrial production is expected to continue for some time the sharp rise of recent months. The index, seasonally adjusted, was in October at 96 percent of the 1923-1925 average, compared with 90 in September and 102 in October of last year.

The steel and motor industries have contributed materially to the increase in activity, and they continue to show exceptional vigor. Steel ingot production has risen to around 62 percent of capacity, compared with 31 percent a year ago and 74 percent two years ago. Automobile production has improved until it is now running around the corresponding levels of other recent years.

Automotive Outlook

Most of the automobile manufacturers have backlogs of unfilled orders equivalent to a month's output, and high rates of production are virtually assured at least through January.

The automobile manufacturers have revised upward their early estimates of 1939 sales, and now are expecting to sell around 40 percent more of the 1939 model cars than of the 1938 model. They also are expecting substantial gains in sales overseas, after having exported nearly as many cars in 1938 as in 1937.

This picture in the automotive field is especially encouraging to the oil industry, as it promises increased consumption of gasoline and other oils.

Oil Industry Situation

The oil industry outlook remains promising also from the standpoint of conditions and prospects within the industry.

For the immediate future, continued strict control of crude oil production is assured, and moderate output at the refineries is to be expected.

Meanwhile, inventories of both crude and refined oils are fairly satisfactory.

Furthermore, the outlook for petroleum consumption in coming months is encouraging, larger demand in 1939 than in 1938 being expected.

Crude Control Strict

Assuring effective regulation of the nation's crude oil production for the rest of this year was the decision last week by the Texas Railroad Commission to continue Saturday and Sunday shutdowns of the fields of that state through December, with exception of one of the five Saturdays of the month.

The Texas commission's order encouraged similarly strict proration allowables in other leading producing states, and United States production will continue in December in satisfactory relation to current market demand and the inventory situation.

The week-end shutdowns in Texas will hold that state's production in December below the market demand as estimated by the Bureau of Mines, and Louisiana and New Mexico also early announced December allowables below indicated demand, while Oklahoma, Kansas and California subsequently stayed within their allocations.

Latest Statistics

The latest weekly statistics of the petroleum industry reflected a continuation of fairly satisfactory conditions, although they were marred by a substantial further increase in refinery runs and a resultant increase in gasoline stocks.

Crude oil production in the week ended November 26, as reported by the American Petroleum Institute, averaged 3,260,900 barrels daily, or about 5,000 barrels more than in the previous week. But it was 4.8 percent lower than in the corresponding week last year.

Crude Runs High

Crude runs to stills in the week ended November 26, averaging 3,295,000 barrels daily, were 65,000 barrels a day higher than in the previous week, and were up almost to the level of a year previously. The runs have been steadily increasing

since the end of October, as indicated by an accompanying table.

Week Ended	Crude Runs to Stills (Barrels Daily)
October 29, 1938	3,145,000
November 5	3,160,000
November 12	3,180,000
November 19	3,230,000
November 26	3,295,000

While the industry has succeeded in bringing gasoline stocks down to a satisfactory level, it still has before it several months of relatively low consumption of gasoline. Consequently, refinery runs henceforth must be held down strictly, if there is not to be an over-building of gasoline inventories between now and the end of March, when the normal seasonal expansion of consumption may be expected.

Gasoline Stocks Up

In consequence of the increased refinery runs in the week ended November 26, plant output of gasoline was larger, and all could not be absorbed by the markets. The result was an addition of approximately a million barrels of gasoline to storage. The stocks rose to 68,628,000 barrels, and were then 1/10 of 1 percent larger than one year before, when they stood at 68,544,000 barrels.

Despite this addition to the gasoline stocks, however, the inventory situation is relatively good so far, being distinctly better than a year ago.

While the storage is about the same now as then, the demand at that time was being retarded by the recession, while the consumption now is being aided by the business recovery. The Bureau of Mines has estimated that December requirements will be 3.6 percent larger this year than last year, having allowed for a 1.6 percent gain in domestic demand and a 35.1 percent increase in exports.

For 1939, gasoline demand is expected by oil economists to be around 4 percent larger than in 1938, taking into consideration an estimated 40 percent increase in sales of new automobiles next year over this year.

Fuel Oil Situation

The fuel oil situation remains favorable, having been aided, in fact, by the recent cold weather and resultant large demand for the heating oils.

Stocks of gas and fuel oil were drawn upon to the extent of about 300,000 barrels in the week ended November 26, having been reduced to 153,634,000 barrels. At that level they were 26.3 percent larger than at the corresponding time last year.

However, fuel oil consumption is materially better now than a year ago, additional oil burner installations having been made in homes and other buildings in the past year, while the business recovery is causing some increase in consumption of the heavier fuels in industrial production.

It has been estimated that the country will consume around 15 percent more furnace oil this winter than last winter.

Markets Steady

The petroleum industry's markets during the past week continued generally steady, with prices of both crude and refined oils mostly unchanged.

Natural gasoline was in good demand, and maximum quotations were up 1/8 cent a gallon.

Low-octane refined gasoline, on the other hand, was offered in some instances 1/8 cent a gallon lower, in both the Oklahoma-Kansas refining districts and the Chicago territory; as cold weather cut into consumption.

Weakness in gasoline also was evidenced in the East Texas refining district.

Kerosene tank car prices meanwhile held steady, as did the prices of all grades of fuel oil.

Earnings in 1938

In the first nine months of 1938, oil company earnings in the aggregate were about 30 percent lower than in the corresponding period of 1937.

But results in the final quarter of this year are proving unfavorable. The earnings have been adversely affected by the general crude price reductions that occurred early in October and by the continued weakness of the gasoline market. They will be brought down also by the writing down of inventory values by some companies at the end of the year.

Prospects for 1939

Many in the industry are hopeful, however, that 1939 will be more profitable than 1938, particularly if crude oil production and refinery runs are held down to satisfactory levels.

For it is felt that gasoline prices may be improved over the unsatisfactory levels of 1938, through benefit of better demand and possibly more moderate inventories.

There is hope, also, that crude oil prices may be restored next spring back around the levels that prevailed prior to the recent reductions.

December Allowables

As indicated in detail in an accompanying table, the six leading producing states, accounting for about 90 percent of the United States crude production, will be again in December within economic limits of output. Consequently, close balancing of national production with national demand is in prospect.

In the aggregate, the six leading states have December allowables 99,158 barrels daily, or 3.3 percent, lower than their market demand as estimated by the Bureau of Mines.

In November, the same states were 203,447 barrels, or 6.7 percent, under their combined allocations, and during that month crude stocks were reduced several million barrels and gasoline stocks were held almost unchanged.

Again in December, Allowables Are Under Bureau of Mines Estimates of Demand for Domestic Crude

STATE	Bureau of Mines Forecast of Demand	State Allowable Beginning of Month	Excess or Deficiency of State Allowable	Percent Excess or Deficiency
California	589,700	*615,000	+25,300	+4.3
Kansas	159,000	†159,000	.....	.....
Louisiana	248,000	247,580	— 420	— 0.2
New Mexico	100,300	98,285	— 2,015	— 2.0
Oklahoma	500,700	428,000	—72,700	—14.5
Texas	1,343,900	‡1,294,577	—49,323	— 3.7
Total Six States	2,941,600	2,842,442	—99,158	— 3.3
Other States	364,200	.....	.....	.....
Total United States	3,305,800	.....	.....	.....

* Recommendation of Central Committee of California Oil Producers.
‡ Average daily production permitted for 7 day week as a whole; actual daily allowable higher, but fields shut-in on 4 Saturdays and Sundays.
† Estimated; allowables for past two months have been same as Bureau of Mines estimates of demand.

South Louisiana Having Banner Year

By CHARLES LEYENDECKER, Staff Writer

SOUTH Louisiana is witnessing one of the most active and successful oil years in its history. This year is a banner one for drilling and discovering of new oil fields, drilling activity having shown a 20 percent increase over the preceding year and discoveries of new fields have surpassed those found last year. There have been more wildcats drilled to date than during the whole year of 1937. Discovery of new sands in old fields has more than doubled those found last year. This activity is in no way concentrated in one portion of the Louisiana Gulf Coast, but is scattered throughout the territory.

During the first 10 months of 1938, there have been 16 new oil fields discovered in South Louisiana and one new salt dome. These new discoveries, plus enlargement of previously located fields and the finding of new producing levels in old pools, has resulted in a material increase in Louisiana Gulf Coast reserves. According to early estimates of geologists the district is discovering two barrels of oil for every barrel being taken out of reservoirs. These estimates are conservative, and will be revised upward, as many of the new fields are only in their preliminary stages of development, thereby affording only limited knowledge as to productive area and possible additional deeper pay sands. As such fields are developed further, it is likely they will add materially to the known producible oil. Moreover, these early estimates do not give any credit for the new discoveries that are certain to be made in the remainder of the year. All estimated yields are based solely upon those discoveries to date.

Out of every four wildcats drilled in the Louisiana Gulf Coast during the past 10 months there has been one oil field discovered. This record becomes more noteworthy when it is considered that in some territories 10 wildcats are drilled for each new field. There have been 68 wildcats drilled in this district since the first of the year, and 16 new oil fields have been discovered and one salt dome. Cameron, Jefferson Davis and Terrebonne Parishes have received more wildcat tests than any one other parish in the area. Lafourche Parish has the highest percentage of new discoveries. There has been three wildcats drilled in the area, three new oil fields have been discovered. There are over 30 parishes in the Louisiana Gulf Coast, and 25 of these have received wildcat tests this year. Two of these parishes, East Baton Rouge and St. James Parishes, received their first oil fields this year.

There seems to be no let up in wildcat activity this year in South Louisiana. There are at present 19 active tests in the district. Several of these active wildcats are reaching interesting depths and if the rate of wildcats to discoveries continues as it has in the past then a number of new fields will be added to the already 16 new discoveries. Increased interest has been focused along the Sparta Wilcox trend.

It was estimated at the first of the year that the Louisiana Gulf Coast would show a 25 percent increase in drilling during 1938 over 1937. This prediction is being borne out at present with the territory already showing a 20 percent increase. At the first of the year operations were slow to get started, but the activity increased and reached its heighth in August when 130 rigs were active. There are 111 rigs running in the district at present.

Jennings field, Acadia Parish,

1938 South Louisiana Drilling Activity Steady

DATE	New Locations	Locations	Derricks	Rigging Up	Drilling Wells	Shut Down	Total
January 3	10	20	7	6	106	14	163
February 7	11	22	12	8	90	9	152
March 7	5	20	9	11	112	7	164
April 4	23	15	11	8	100	7	164
May 2	17	15	11	7	110	10	170
June 6	7	24	12	3	117	5	168
July 4	11	19	10	5	107	7	159
August 1	10	20	11	4	130	8	183
September 5	12	22	9	1	123	6	173
October 3	19	25	9	7	112	5	177
October 31	9	25	11	3	111	6	165

South Louisiana Wildcats Successful

PARISH	Wildcats Drilled	Still Active	Discoveries
Acadia	4	1	2
Assumption	..	1	..
Avoyelles	2	..	..
Beauregard	3	..	1
Calcasieu	6	..	..
Cameron	10	2	2
East Baton Rouge	2	..	1
Iberia	1	..	1
Iberville	..	1	..
Jefferson	1	..	..
Jeff Davis	6	..	1
Lafayette	..	..	..
Lafourche	3	2	3
Orleans	1	2	..
Plaquemines	1	..	1
St. Bernard	2	2	..
St. James	1	1	1
St. Landry	2	1	..
St. John	1	..	..
St. Martin	4	3	..
St. Mary	2	..	..
St. Tammany	3	..	..
Terrebonne	6	3	3*
Vermilion	4	..	1
Vernon	1	..	..
Total	51	19	17

* Salt Dome.

continues to be the most active field in South Louisiana with well over a dozen rigs active. The activity is around the flanks of the field where a deep sand was opened the previous year. New Iberia, Hackberry, East Hackberry, Charenton, and several of the new discovered fields, this year showed continued activity.

While companies have been busy discovering new oil fields in the Louisiana Gulf Coast, operators have been busy developing new sands in old proven fields. Probably the most important new sand discovery this year is at Venice in Plaquemines Parish, where Tide Water Associated Oil Company logged two sands, one over 100 feet thick and the other 91 feet thick. The 100-foot sand was found at 5597 to 5705 feet and the other was found in the same well from 3540 to 3631 feet. The discovery of these two sands at Venice has started twin drilling. There are now three producing sands in the field, the deepest being around 7200 feet.

Jennings field, Acadia Parish, received another new flank sand this year, when Superior Oil Company completed J. Clement 1 on the north side of the field. Superior Oil Company also was successful in discovering a new flank sand on the southwest side of Hackberry field, Cameron Parish. Other important new sand discoveries during the year were at Charenton, St. Mary Parish; Garden Island, Plaquemines Parish; Leeville, Lafourche Parish; Lafitte, Jefferson Parish; Sorrento, Ascension Parish; Big Lake, Cameron Parish; Valentine, Lafourche Parish; Woodlawn, Jefferson Davis Parish; Lake Long, Lafourche Parish; Choctaw, Iberville Parish; Abbeville, Vermilion Parish; Sweet Lake, Cameron Parish; Fausse Point, Iberia Parish; Bayou Des Allemands, St. Charles Parish; Bancroft, Beauregard Parish; Bayou Blue, Iberville Parish; New Iberia, Iberia Parish; Port Barre, St. Landry Parish; Gibson, Terrebonne Parish; Bay St. Elaine, Terrebonne Parish; Lirette, Terrebonne Parish; North Crowley, Acadia Parish; Jeanerette, St. Mary Parish; South Roanoke, Jefferson Davis Parish.

South Louisiana is the deepest drilling district in the world, and 1938 saw the world's deepest oil well completed in this area. Fohs Oil Company completed a well at Dulac in Terrebonne Parish at 13,254 to 13,266 feet. The deep drilling trend in the Louisiana Gulf Coast region continues to march forward, expanding more rapidly than in any other area. More 10,000-foot and deeper tests have been drilled in this district than any other area. True, there are other districts in which deep tests are being drilled, but none are achieving such great depths with the consistency featuring operations in the Louisiana Gulf Coast.

A total of 87 tests have been drilled in South Louisiana to 10,000 feet or deeper. The year 1937 saw 31 tests reach the 10,000-foot horizon or deeper. During the first six months of 1938 there were 30 wells to go to 10,000 feet or deeper, lacking only one well of matching the number drilled in the whole year of 1937. During the past four months there have been 26 wells to go beyond 10,000 feet or making a total of 56 wells so far this year to be drilled below the deep mark.

The first 10,000-foot well was completed in South Louisiana in January, 1935. Two years later, January, 1937, the first 10,000-foot production was established in Louisiana at Lafitte. This was the first 10,000-foot production in the world. Since the first production was obtained from 10,000-feet there have been 10 other areas to produce oil from depths at 10,000 to 13,266 feet. The deepest well ever drilled in South Louisiana was Fohs Oil Company's 13,409-foot test at Dulac.

Sixteen New Fields In South Louisiana During 1938

Geophysical Advancements Responsible for Illinois

By GRADY TRIPLETT, Staff Writer

It is not an exaggeration to give this branch of science full credit for the whole southern Illinois development

DISCOVERY of 17 oil fields in the Illinois Basin within two years is a triumph for geophysics. Although geophysical instruments claim full credit for only 10 of these fields, on the score of reserves the ratio is fully nine to one in their favor. This is due to the fact that the three larger fields, Centralia, Loudon and Salem, were thoroughly worked with geophysics before the first well was drilled.

When it is realized that none of the trend plays would have been made without the early success of geophysics, it is not exaggeration to give this branch of science full credit for the whole southern Illinois development.

History of the Illinois Basin and its relationship to geophysics can be gained readily from excerpts from two papers read before the fifth annual Illinois Mineral Industries Conference, Urbana, October 8 and 9, 1937. This from Dr. A. H. Bell, geologist and head of the oil and gas division, Illinois Geological Survey:

"Events leading up to this year's discoveries began several years ago. Most important, perhaps, was the discovery in 1928 of the Mt. Pleasant field in the central part of the Michigan Basin, a large geosyncline similar in many respects to the Illinois Basin. Previously, such basins had been considered unfavorable to the occurence of oil because it was thought that any oil formerly present had migrated to the margins. The presence of structural irregularities in the central part of the Michigan Basin was demonstrated prior to the discovery of oil by subsurface data obtained from brine wells. At that time subsurface data in the Illinois Basin was insufficient to reveal the details of the subsurface structure. The probability that unknown local structures, some of them favorable to the occurence of oil and gas, were present in the Illinois Basin was recognized by the Illinois State Geological Survey and an article was prepared and presented before the annual meeting of the Illinois Academy of Science, May, 1930. This report recommended that the central basin area be explored for oil."

From the paper by Theron Wasson, chief geologist, The Pure Oil Company:

"Following the discovery of oil in Michigan in 1937 the geological department of The Pure Oil Company became interested in the Illinois Basin and for the first time became acquainted with the staff of the Illinois Geological Survey. As a preliminary study a cross section was prepared from Lawrenceville to St. Louis. The published logs of old wells were used for this section. It showed a disturbance in the area between Flora and Olney. This suggested structural feature was not given great weight because there was a chance of error in the logs. It, however, was a clue which led to the reconnaissance torsion balance survey made in 1930. This work, which started at the Indiana line and crossed a portion of the old fields, indicated a gravitational disturbance similar to that found on the south end of the La Salle anticline. The work was discontinued before the north end was completed. The success of the reflection seismograph in Oklahoma and Texas led to a survey by that method in Illinois during 1935 and 1936. The seismograph work checked the existence of a structural disturbance running across Wayne, Richland and Jasper counties. Drilling has so far confirmed the geophysical work. The structural feature along which the new pools are located appears to be an extension southwestward from the Oakland anticline. It has an axial trend parallel to the cross folds outlined Mylius in Bulletin 54. The Duquoin anticline and some other structures in southern Illinois have similar northeast-southwest trends."

First users of the seismograph in Illinois were The Pure Oil Company, The Carter Oil Company, The Texas Company, Gulf Refining Company, eastern producing division and Adams Louisiana Company. The latter, now Adams Oil & Gas Company, met with first success in drilling after seismograph work, as it discovered the Patoka field, January 27, 1937. Cisne and Clay City were discovered

in March, 1937, Noble in August, Rinard in October, Centralia in November and Loudon, known at the time as Beecher City, in December.

Since 1936 the Illinois Basin has had from 10 to 16 geophysical crews constantly at work over its area. In October of this year there were a dozen crews at work. Indications were that not more than 10 would be active during the winter and that the area would see more crews at work next summer.

The number of acres under lease in the basin has been as high at 7,000,000. There are no means of ascertaining what portion of these were taken on geophysical data but it runs well above half the total.

On the score of wildcat drilling, however, the use of scientific instruments is not in the lead. Of the 127 wildcats completed in 1937, 80 were drilled without the benefit of the seismograph, leaving 27 located after shooting, 17 from geologic survey information and 3 on a combination of seismograph and geologic data.

Only 8 oil wells were completed from the 80 locations made without benefit of scientific exploration. There were 11 oil wells completed from the 47 located by scientific means. This information on success of scientific investigation was given before 1938 meeting of the A. I. M. M. E. in New York.

The Illinois Basin offers favorable conditions for seismograph work. The shallowest bed from which reflections are made is the upper Fredonia limestone, average depth 3500 feet. The bed most frequently used is the Devonian lime, found from 4000 to 4500 feet deep. Deepest of the beds for reflection work is the Trenton limestone from 7000 to 7500 feet deep.

Reason for keeping so many crews busy in Illinois is the conviction that a basin as large as that covering the southern half of the state has more than two structures similar to Loudon, 18,000 acres, and Salem, 7,500 acres proven and likely to be enlarged to 8500 acres when defined. These are the two major prizes out of reflection shooting in Illinois. Each has a reserve in excess of 100,000,000 barrels.

Work already completed has left evidence to indicate at least eight structures on which no drilling has been done. No doubt there are others but the eight are known and it is likely that all will be tested by the drill in 1939. Weather conditions during the winter and early spring are unfavorable to wildcat drilling.

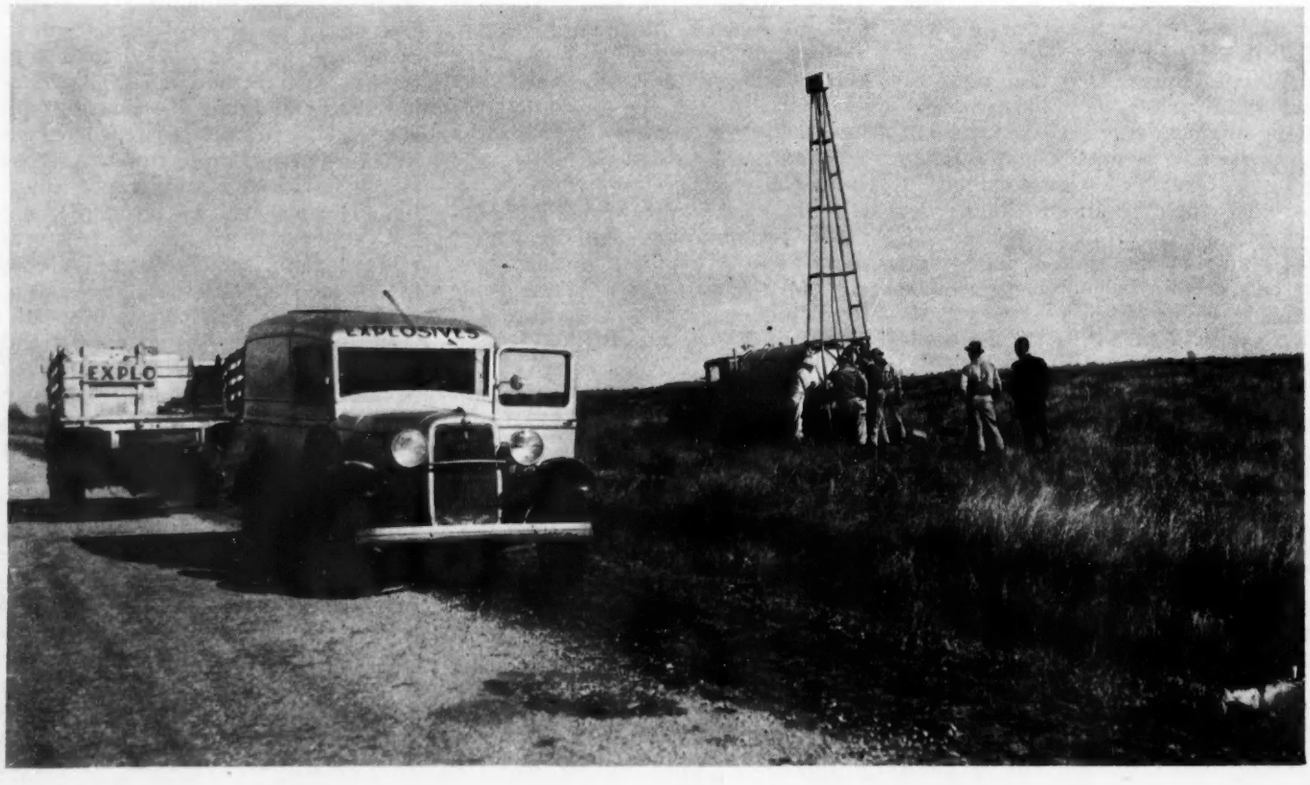
Meanwhile from 10 to 16 seismograph crews are busy seeking still other indicated structures.

Certainly four years of geophysical prospecting and two years of intensive drilling are not sufficient to test the favorable part of the Illinois Basin. Predicting the future in oil development is impossible. The only guide is the record of other areas and in these, the Mid-Continent, Texas, Arkansas and Louisiana, and in these the first half dozen years of development resulted in uncovering but a small part of the reserves now known. On this basis, it seems likely that the Illinois Basin will yield far more than the 300,000,000 barrels of oil now credited to it in reserves.

The basin also has its prospects in deeper drilling. The remarks of Wasson from his paper previously quoted, offer this on deeper drilling:

"In Illinois and Indiana production is found in rocks older than the St. Genevieve so that it is natural to speculate about the deeper possibilities in the new area. In western Indiana oil is found in Devonian limestones and dolomites. In the old Illinois fields there is production in the Trenton. The St. Peter offers little possibility as it has not produced east of the Mississippi river. In a new area where a thick sedimentary section exists there is always the possibility of unknown and unexpected producing horizons. It will require drilling to a depth of 7,000 feet to answer these questions."

The St. Peter formation in Illinois is considered identical with the Wilcox sand in Oklahoma. It has not been drilled to sufficient extent in the Illinois Basin to be condemned. The few instances of drilling into it were in the older areas of Illinois and Indiana.



Drilling With Reverse Oil Circulation in Wider Use

By F. G. BECKMAN, Beckman, Inc.

Most common applications of the method is for drilling-in and cleaning out of wells, but considerable improvement in past two years permits it to perform several jobs.

IN the past two years considerable work has been done in developing the reverse circulation method of drilling, and it has come into more general use. A number of improvements have been made in equipment, some special tools have been developed that make it possible to perform quite a few different jobs in oil field operations.

So far most of the work has been confined to using oil as a circulating medium for completing oil wells after the regular rotary has set casing. A good part of the activity has been in cleaning-out both old and new wells. The method has been found particularly efficient in cleaning-out shot holes.

With the reverse oil circulation method it is possible to:

(1) Drill in new wells, getting a more accurate log of the formation;

(2) Drill the plug and thoroughly wash the hole;

(3) Drill out cement plugs and drill out retainers on squeeze cementing jobs;

(4) Underream while drilling in new wells;

(5) Underream while cleaning out old wells;

(6) Underream and drill new holes in salt-water disposal wells;

(7) Clean out wells quickly and efficiently after shooting or acidizing;

(8) For special jobs such as rolling out collapsed casing, side-tracking by use of whipstock mill, cleaning outside of lost tools in shot holes so they may be recovered.

The reverse method of circulation has possibilities for other applications.

The following advantages of using "reverse circulation process" of drilling are:

(1) Saving of time in completing a well and releasing the heavier drilling equipment as soon as pipe has been set;

(2) The use of oil for drilling the formations which enables the well to produce all it is capable of producing;

(3) Accurate logging of formation while being drilled, which could be only approached by using a core-barrel with 100% recovery;

(4) Leaving an absolutely clean hole on completion;

(5) Less liability of cave-in.

The reverse circulation drilling method is just what its name implies. It is simply rotary drilling using a pack-off head at the top of the casing in order to circulate the drilling fluid in the reverse direction of conventional methods.

This is more or less a natural development in the art of drilling. The idea of reversing the flow of fluid has been attempted in the past generally for accomplishment in some specific purpose, but not with the idea of continuous drilling. Later some attempts were made to use reverse circulation in drilling but were unsuccessful. It has been found that the reason for failure in the past has been due to mechanical difficulty rather than the fundamental theory.

This method was first attempted because it seemed to be perfectly adapted for the use of oil as a circulating medium in drilling the producing formations, and also in cleaning-out wells, so that the work could be accomplished without the use of mud or water. It has been shown that the use of mud or water in completing or cleaning-out a well is harmful in most cases. The use of oil certainly eliminates any hazards of damaging the well in the drilling or cleaning operation.

It has been found to be particularly advantageous because of the low power requirements, due to the fact that advantage is taken of us-

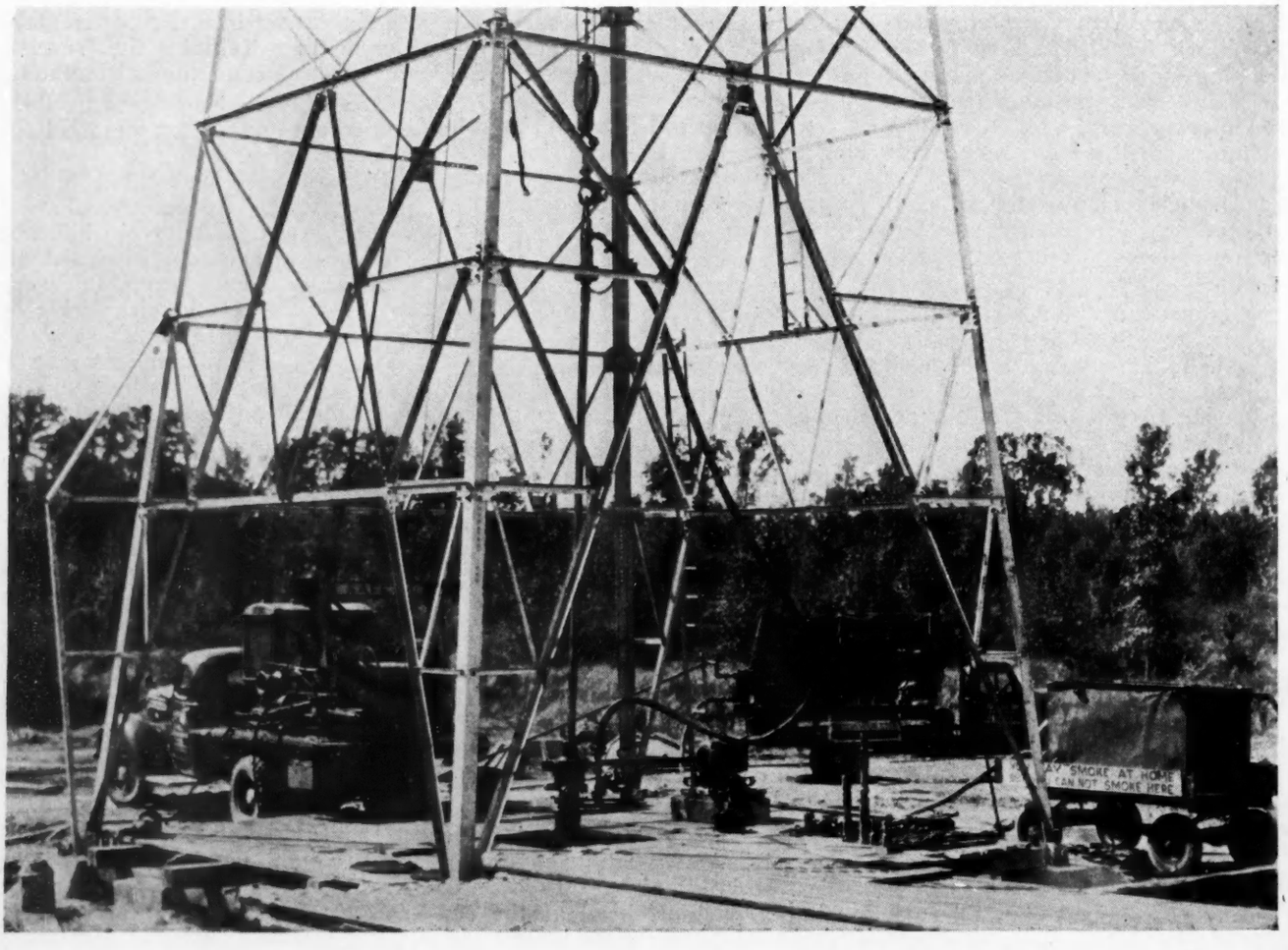
ing the high velocity stream in the circulating system to carry out cuttings and debris. It is only a simple question of hydraulics wherein pipe friction or loss of head varies as the square of the velocity. It is necessary to maintain sufficient velocity to carry out the cuttings or debris. In the standard rotary process, fluid is forced down to the bottom of the well through the drill pipe, and the cuttings are carried out by the fluid traveling between the drill pipe and the wall of the hole, and it is readily apparent that a much higher velocity is required through the drill pipe than is obtained in the casing. In the case of "reverse circulation" the fluid is pumped down through the casing and on the outside of the drill pipe and travels upward through the drill pipe to the surface. The velocity of the fluid going to the bottom of the hole is very much lower than with the standard rotary and the velocity of the fluid traveling up through the drill pipe would be the same or greater than the velocity of the fluid in the casing with the standard rotary.

To make a simple comparison of the power requirements, assume that a 4-foot per second velocity of circulating fluid is used to carry cuttings, and assume that the area of the drill pipe is 1/5 of the area of the annular space on the outside of the drill pipe. In order to meet that condition, using a rotary discharging through the casing at 4 feet per second, the velocity of fluid entering the drill pipe would have to be 20 feet per second. In the case of "reverse circulation", the discharge through the drill pipe is 4 feet per second, then the casing fluid velocity is 4/5 of a foot per second. It is readily apparent that the "reverse circulation process" requires only 1/5 as much fluid. Hence, since the velocity is 1/5, (remembering that pipe friction or loss of head varies with the square of the velocity) then the pressure on the pump would be 1/25 of that required by a standard rotary under the same conditions. The power required to pump any given volume of fluid at a given pressure is in direct ratio of the product of the volume times the pressure. In this case, "reverse circulation process" would require 1/125 as much power as a rotary under the same conditions. With the "reverse circulation process", if 30 horsepower is used to operate the pump, the standard rotary would be required to have 125 times the power, or a total of 3750 horsepower.

Accurate Logging

It has been found that in drilling with the "reverse circulation process", using a relatively high fluid velocity in the drill pipe, that accurate logging can be accomplished. It was noticed that when the velocities were relatively slow, cuttings could be carried out of the

A drilling-in job in the East Texas field using the reverse method of circulating. One truck carries the drawworks or hoist. A second truck carries the circulating pump and generator unit which supplies power for the 7½-horsepower motor, which in turn operates the rotary table. A trailer is used to carry a 12-barrel circulating tank of oil. The same oil is used over and over, thus avoiding waste.



★

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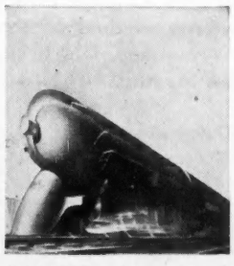

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A set of samples taken while drilling-in a well in East Texas. This makes a complete log of the well. At least one company makes up a set of these for each individual well for filing.

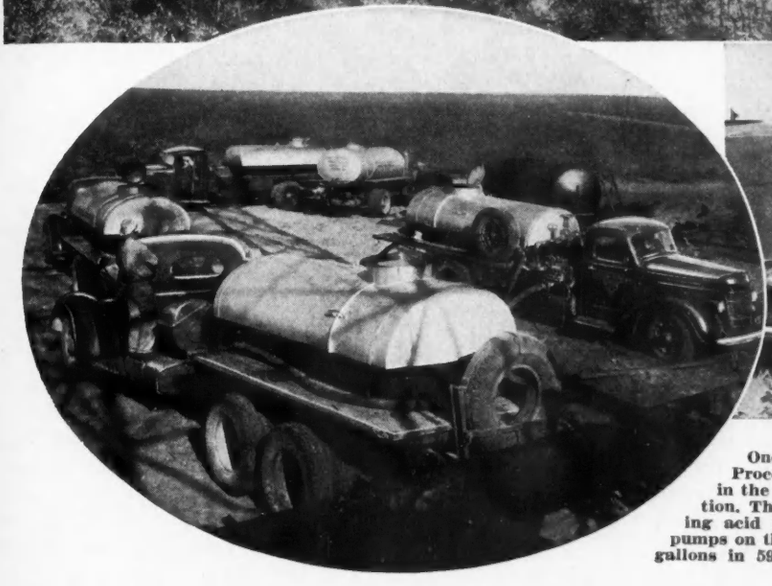
well, but they were mixed and the rate of the upward travel was somewhat less than the velocity of the fluid. However, as the velocities were increased, this lag was decreased and eventually a point was reached where the lag was not apparent and the cuttings would block off smoothly from one formation to the other as they were cut off by the bit.

In looking at the diagram showing the travel of the fluid through the bit, and upward through the drill pipe, it is apparent that it is impossible for any cuttings to accumulate in the well. As soon as they are cut loose they enter the fluid stream and pass upward through the drill pipe. It is readily apparent, such conditions being the case, that it is simply a matter of knowing the time interval in getting returns to the surface, and by a proper check on the kelly bar and drilling speed an accurate logging can be accomplished. The cuttings that are recovered break off smooth from one formation to the other without any apparent admixture. They are clean and sharp as they come from the bit. They are not eroded or rounded off and will give the engineer or geologist accurate information as to the formation being cut and its nature. It is so sensitive and accurate that formations of only one or two inches in thickness can be logged to the accuracy of measuring the drill stem.

It is apparent that the advantage in using this method is that the drilling crew can have a sample of the cuttings for their observation in from 8 to 10 minutes from the time that they are cut off with the bit in wells of three to four thousand foot depth. It is simply a case where the driller can know what

Sand samples taken from an East Texas well. Note that the cuttings are sharp and not eroded. These samples have been washed with gasoline, but there has been no assortment or removing of foreign objects. The reverse method of circulating blocks off smooth between formations, which illustrates its sensitiveness in logging.

Chemical Process' Acidizing Equipment Must Go Through . . . That's Why They Bank on Internationals



One of the fleets of International Trucks which the Chemical Process Co., Breckenridge, Texas, maintains at strategic points in the fields of the Southwest is shown at the top rolling to location. The other two scenes show Internationals on location pumping acid into the hole. These trucks have 1,000-gallon tanks and pumps on them. On one acidizing job the well was treated with 20,000 gallons in 59 minutes, ten pumps delivering the acid simultaneously.

NO location is too tough for Internationals to reach when Chemical Process gets a call to treat a well. But getting through to location is just part of the job for these trucks. When they are maneuvered into position, the power take-off on the trucks cut in and the truck engines drive the pumps to force the acid into the hole.

Chemical Process has one of the largest fleets of International Trucks in the oil fields. You see them in Texas, Oklahoma, Kansas, New Mexico, and Louisiana, where this pioneer acidizing company has its branch offices and treating stations.

After Chemical Process was organized in 1932 at Breckenridge, Texas, they tried out a variety of hauling equipment. But they found Internationals "the most efficient trucks for oil field work" and decided to standardize on them. They are enthusiastic about the kind of performance and economy Internationals deliver under the most adverse conditions.

The experience of Chemical Process with International Trucks bears out what other oil men have learned—that Internationals are *engineered right* and *built right* to get loads through the world's toughest going. Investigate these trucks for your own business. See the nearby International dealer or Company-owned branch for information on this complete line, 42 models (including 12 with Diesel engines) in 142 wheelbase lengths, ranging from Half-Ton units to powerful Six-Wheelers.

INTERNATIONAL HARVESTER COMPANY
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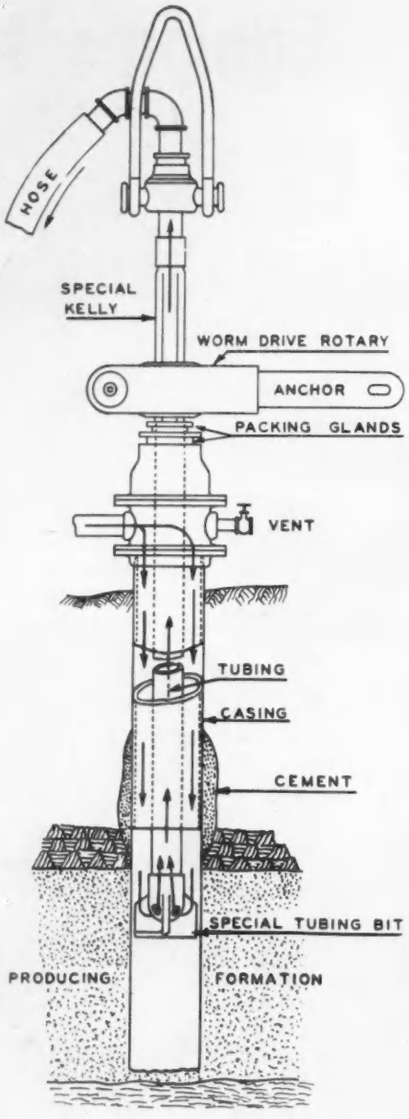
INTERNATIONAL TRUCKS



The reverse circulation of oil is explained by this drawing, which shows down through annular space between the casing and drill pipe, then upward through the bit and drill pipe and out through the rotary hose.

his drill is doing as the drilling progresses.

In the last two years, in completing approximately 600 contracts of drilling-in and cleaning-out wells, the following observations and conclusions have been made: In penetrating stratas of chalk, hard and soft shale, and lava ash or bentonitic deposit, it has been found in all cases that these formations were in a perfectly dry and firm state. There has not been any apparent break-down of these formations in oil, while it is a known fact that all these formations will break down to mud or gumbo when in contact with the water or drilling mud. While experience has been somewhat limited in drilling formations that will heave and cave with water, either with rotary or cable tools, they do not show any signs of caving or heaving when drilling with oil.

Cleaning Out Work

It has been found that the "reverse circulation process" of drilling, used for cleaning-out old wells that have caved-in or have been shot, can be accomplished with a considerable saving of time.

This is due to the fact that by using "reverse circulation", the diameter of the hole does not in any way effect the volume of fluid circulated to do the work. The only factor that effects the amount of fluid to be circulated is the size of the drill pipe, and as long as the caving and debris can be brought down to the bit, it is just as efficient in a 50 foot diameter shot hole as it would be in a 5-inch casing.

In cleaning out a shot hole as long as the cavings will fall to the bottom of the hole they can be carried out readily. The softer and smaller particles will be pumped out readily, while the larger chunks have to be broken up by the bit. In the past, in old wells, where the debris has become more or less consolidated, it has been the practice to allow the well to unload and produce, or to swab it several times during the cleaning-out operation in order that the debris would fall to the bottom. This sometimes has been difficult and in order to accomplish the caving action a washing tool has been developed recently to be used with the "reverse circulation process".

This tool is used as a drill collar and can be used with the conventional rotary or reverse circulation. Its design has been with the

A well in the Harper pool of West Texas is being cleaned out. Ordinary pipe line pumps and power units are employed for circulating force. Note that the well is equipped with only a 50-foot gin pole. Wells in this field have been cleaned out for a considerable distance in 120 hours at a cost of $324.

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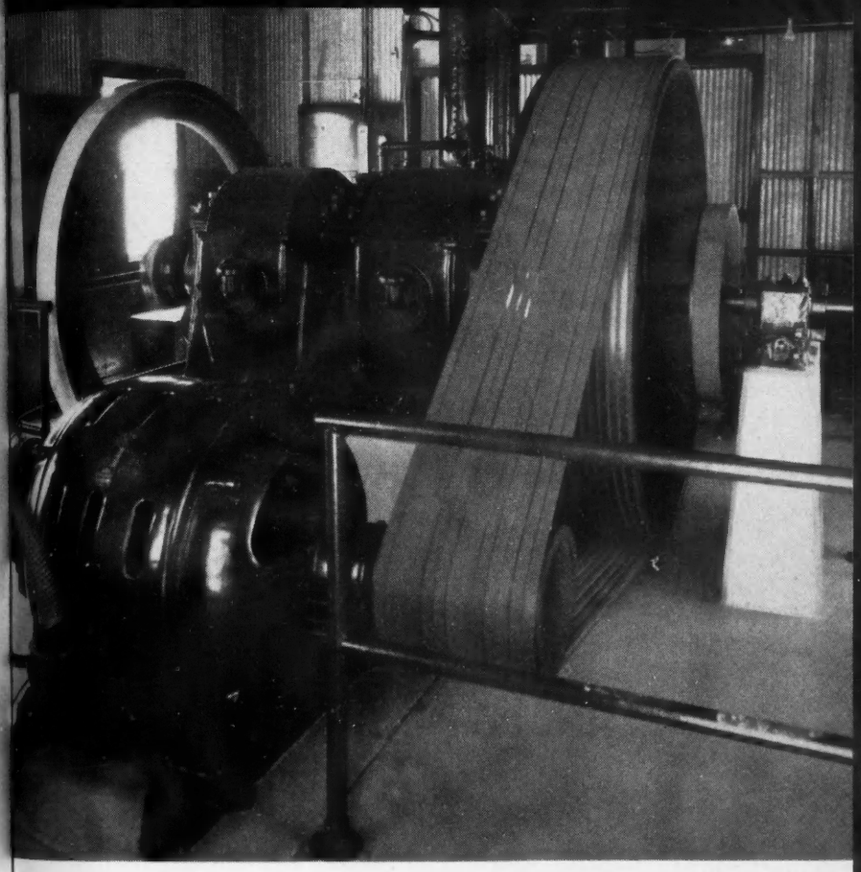

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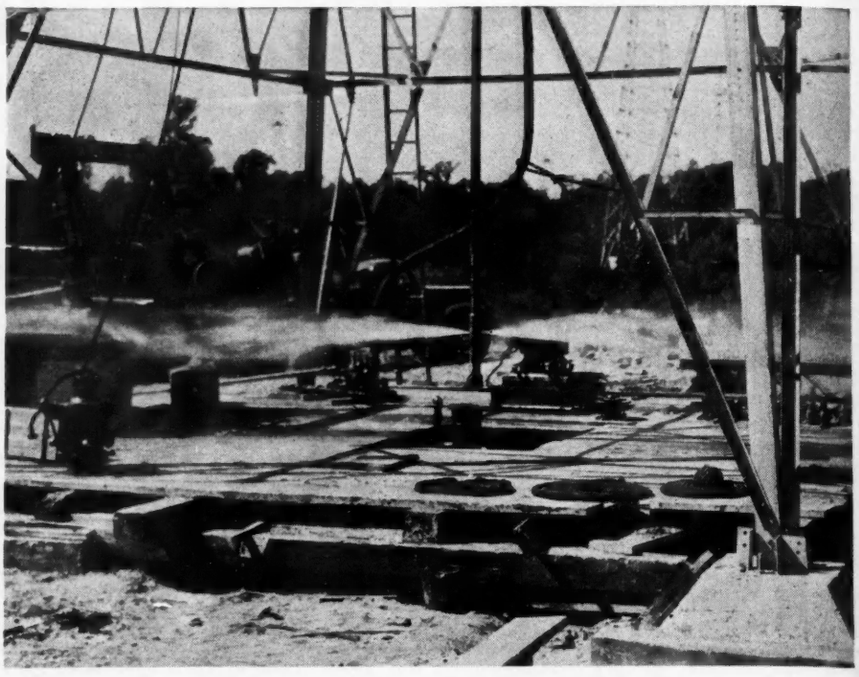
idea of running the drill down the length of the kelly in the accumulated debris in a well being cleaned, and then drop a ball or lower a valve in the drill pipe which covers the water course in the sleeve on the inside of the tool. When this valve seats, the pump pressure in the drill pipe will force this sleeve downward shutting off the circulation through the drill and opening up two or more ports above the drill. This causes a jetting action on the side of the hole and will loosen up the material that did not cave. This material will then settle to the bottom as soon as the pump has been stopped, or the circulation reversed. When the circulation is reversed the sleeve is forced upward by a spring, covering the side ports, the valve or ball would be pumped up to the surface in the same manner that the cuttings and debris were carried out. The work progresses without having to withdraw the tool after it has been used. The washing tool can be used as often as desired without withdrawing tools from the well.

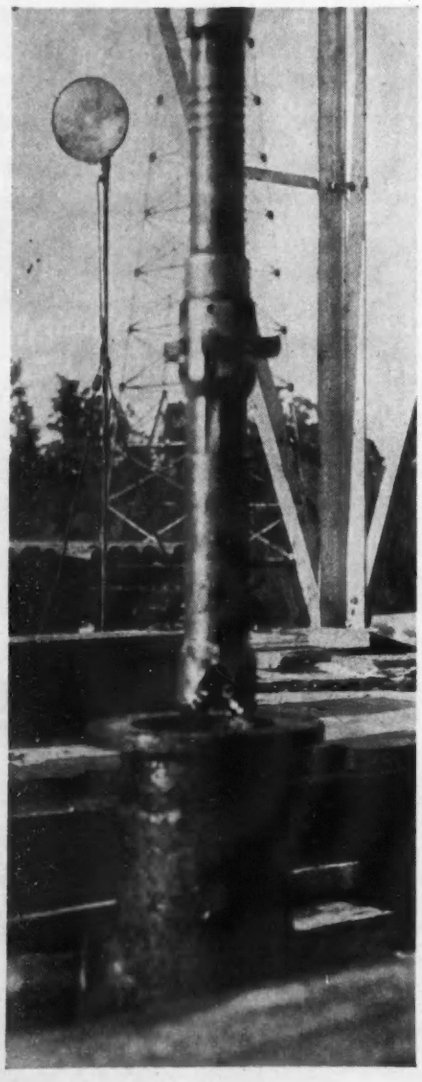


A reverse circulation washing tool in action. The fluid stream from the ports of this tool has a velocity of better than 1200 feet per second. This is used for washing out a hole, and particularly for loosening debris that has become partially consolidated.

There is every indication that using a high velocity fluid stream directed against the wall of the hole that large cavities will be very thoroughly cleaned, and with the cleaning operation completed that there is much less possibility of periodic cave-ins as in the past.

An underreaming tool has been developed to be used primarily in using "reverse circulation", however, it can be used with a conventional method. This tool is very simple, its design having only four moving parts built in the reamer, three blades and an actuating quill. This tool is placed immediately above the bit and serves as a drill collar until such time as it is desired to use the tool. Pump pressure is used in opening the tool very similarly as described with the washing tool, but after it once has been opened it is not dependent upon the pump pressure to keep it open, and circulation in either direction can be accomplished while underreaming is being done.

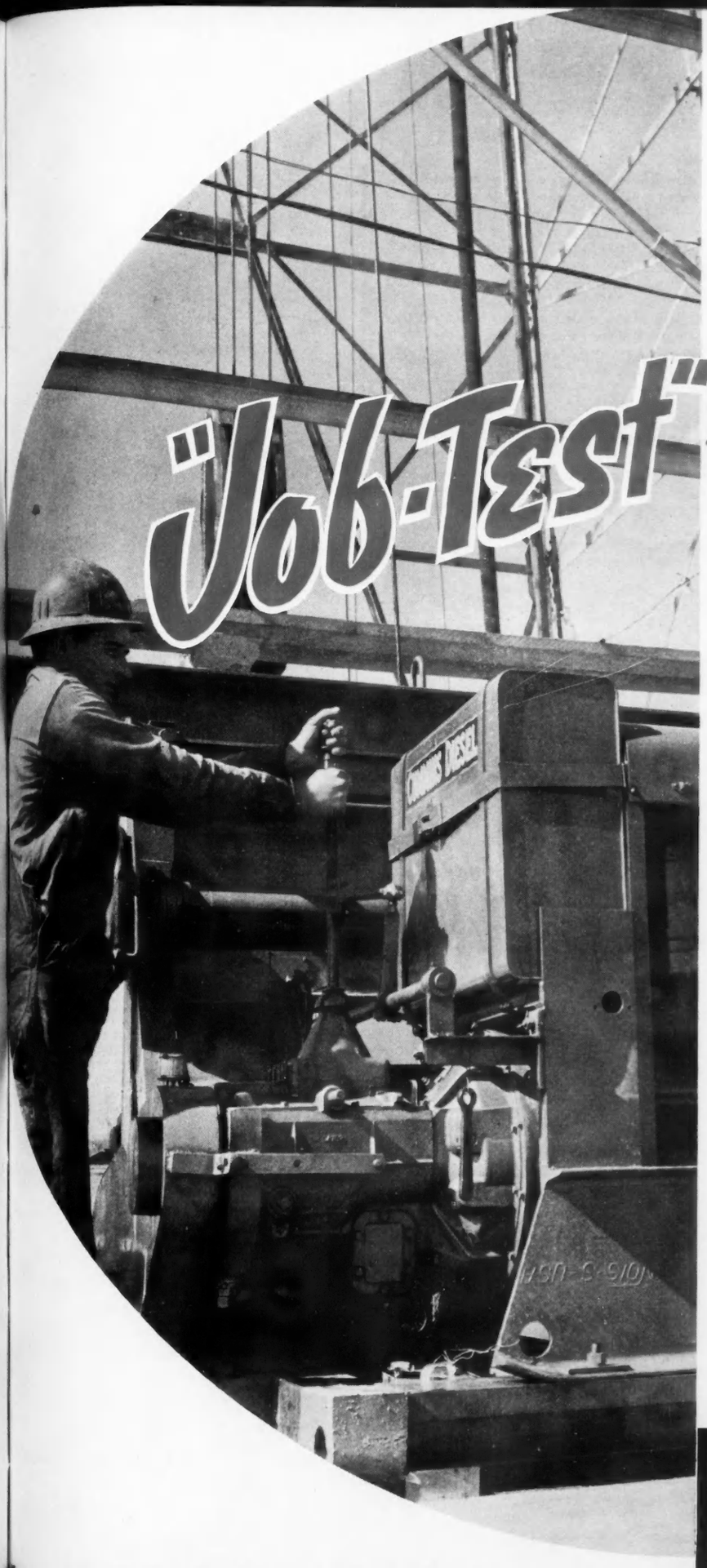
Another use of this tool is in completing wells where the formations have been drilled with the bit to the largest size permissable in passing through the casing and by pulling up sufficiently high and underreaming the producing stratas to a larger diameter than the bit would cut. By using this tool it is possible to use 5-inch pipe and have a 7-inch or 8-inch bore through the producing formations.



An underreaming tool with collapsible blades that permit running it through small size casing. This tool has been used on a number of jobs making salt water disposal wells, cutting new faces on old formations.

From every guage of comparison that has been made, the use of oil as a circulating medium has shown consistently better results than where rotary or cable tools were used with water or mud. It gives every assurance that the hole is absolutely clean when completed. Another advantage is a big saving of time as well as a saving in the actual cost of doing the work.

The use of "reverse circulation" has brought to light a number of interesting incidents and seems to reveal some facts regarding wells, that have heretofore not been known or recognized. The full possibilities of the method has by no means been exploited in the last two years of its generally known use.



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THE paper summarizes the type of information upon which modern soil-corrosion tests are made. From this background two approaches are open to the corrosion technologist. He may: 1, examine data on corrosion experience to deduce certain constants to define soil corrosiveness; or 2, he may correlate these constants (corrosivity) with soil measurements made in the field.

Having established those criteria most suitable to the corrosion survey required, a method is described that will evaluate the survey in terms of operating costs and investment charges.

The work of many able investigators is discussed in the hope that corrosion technologists will become interested in making quantitative measurements of the effects of corrosion in different soils. How this may be done is indicated.

Some of the pitfalls awaiting unwary users of statistical formulas are noted, and a method by means of which extrapolations can be criticized is given.

Presented before the Nineteenth Annual Meeting, American Petroleum Institute, Chicago, November 18, 1938.

The Value of Soil-Survey Methods

By J. M. PEARSON
Sun Pipe Line Company

SOIL-SURVEY methods are valuable to pipe line technologists because their use may lead to:

1. A reduction of long-time over-all operating costs.
2. A reduction of the rate of physical depreciation, and an increase in salvage value of buried lines.
3. A reduction of hazards entailing large liabilities.
4. A satisfaction of intellectual curiosity.

Item (4) and the restriction of "value to pipe line technologists" are mentioned because, at this stage, the valuable use of present methods can be expected only from those familiar with the complexities, pitfalls, and extreme limitations they must recognize; the satisfaction of the intellectual curiosity of those engaged in this work is the only road to more reliable methods. It is safe to say at the beginning that there are no rules of procedure that can be followed mechanically with any hope of success. The blind extrapolation of empirical or statistical formulas leads nowhere, if not to obvious absurdities.

In the following ideas, corrosion technologists will recognize many old friends; technologists not primarily interested in corrosion will have a glimpse of the methods of attack, and of the great amount of study and progress made by those engaged in the work. While we cannot hope to evaluate all soil-testing methods, we shall try to illustrate how such evaluations can be made. It is hoped that some of the lines of attack will prove interesting enough to encourage more people to make appropriate studies.

THE MECHANISM OF CORROSION AND ITS RELATION TO SOIL TESTS

Perhaps the best way to view present soil-survey methods is from the standpoint of the mechanism of corrosion. From this viewpoint the rationality of a given method can be appraised. The final test of usefulness

4 WAYS

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must be whether the chosen method gives predictions in substantial agreement with experience.

A. Fundamental Reactions

We may consider it an established fact that corrosion is fundamentally an electrochemical process.[8a, 22, 23] The basic reaction:

$$Fe+2H^{+}\rightleftharpoons Fe^{++}+2H$$

This says that hydrogen ions tend to give up their charge to iron atoms, producing iron ions and nascent hydrogen. In stray-current electrolysis the iron undergoes an exactly similar change, except that the impressed current furnishes the charge for the iron ions.

There are two electrical equilibria represented in this relation:

$$Fe\rightleftharpoons Fe^{++}+2e^{-}$$
$$H\rightleftharpoons H^{+}+e^{-}$$

The tendency of these reactions to proceed can be expressed in terms of a potential which depends upon the ion concentration and temperature, and in the case of gases on the gas pressure. The relations involved are well known from measurements and thermodynamic considerations, and are beautifully set forth in the paper by Burns and Haring.[8] It is sufficient to note here that the familiar rules of chemical reactions apply to the above ionic equilibria, viz., that an increase in the quantities on one side of the equation drives the reaction in the direction of the other side. The higher the concentration of positive ions, the more positive is the potential of the electrode in equilibrium with them.

B. Polarization Phenomena and Aeration

The tendency of iron ions to go into solution at the surface of any commercial pipe varies in marked degree from point to point on its surface. This is due to variations in scale or slag inclusions, composition, crystal orientation, and residual stresses, on the part of the metal; but is still more dependent on variations in the contact between the soil and the iron. The result is that, instantly upon immersion in (soil) water, there are formed numerous cathodic areas upon which hydrogen ions discharge, and corresponding anodic areas at which iron ions go into solution. The reduction of hydrogen-ion concentration adjacent the cathodic areas and the increase in metal ion concentration at the anodes very rapidly reach an equilibrium represented by an approximate equality in the electromotive forces corresponding to the above ionic reactions. Inasmuch as the ionic reactions take place separately, an electric current flows through the metal from the cathodic areas to the anodes, and back through the soil.

All would be well, and corrosion would cease, if both the anodic and cathodic areas reached identical potentials, or if the electrical circuit were interrupted. Anything that upsets the equilibrium increases the tendency to corrode. Precipitation of the iron ions as insoluble salts at the anodes, or removal of the hydrogen film at the cathodes, can separately or collectively promote corrosion. In the great majority of cases of soil corrosion, the depolarization of the cathodes is the controlling factor. The most common depolarizing agent is dissolved oxygen. However, hydrogen can be removed from cathodic areas in several other ways—which are, in rough order of importance:

1. Mechanically, by agitation.
2. By bubbling off.
3. By entering into the metabolism of anaerobic bacteria.

C. Corrosion Processes in Acid Soils

Let us now try to visualize the corrosion of a pipe line as it runs the gamut of soils. We must bear in mind the picture of separate anodic and cathodic areas, the factors tending to destroy electrical equilibrium, and the counteracting effects. The part played by the soil as a more or less poor electrical conductor, and its texture, affect the earth return circuits.

Suppose the line is in a soil having a strong acid reaction (pH * 3 to 4.5). Under these conditions the tendency of the iron to go into solution at the anodes is so strong that the hydrogen liberated at the cathodes may reach atmospheric pressure and bubble off. The chief corrosion-limiting factors in this condition are a depletion of the acid by the pipe, and formation of insoluble salts of iron which tend to shield the pipe. If the soil is buffered, or if it is porous enough so that ground water can circulate, the supply of acid is renewed and the corrosion proceeds rapidly. If the products of corrosion are soluble or adhere loosely, they are less protective. Due to the rapid removal of the pipe surface, the anodic and cathodic areas are continually shifting—with the result of a general attack over the whole pipe surface. The presence of oxygen to combine with the hydrogen at the pipe surface further enhances the rapidity of the attack; a large excess of oxygen in well-drained acid soils may, on the other hand, seal off the anodes by precipitating iron salts—with a corresponding reduction of the corrosion rate. Inasmuch as the paths of the corrosion currents through the soil are very short, the resistance of the soil is of little importance.

D. Corrosion Processes in Intermediate Soils

In soils whose waters are less acid or slightly alkaline (pH 5.5 to 7.5) the equilibrium of the surface film of nascent hydrogen and the hydrogen dissolved in the metal with the hydrogen ions determine the rate of corrosion. The principal agent effective in disturbing the equilibrium is oxygen. In mildly-areated soils, the hydrogen film is slowly removed—and more hydrogen is formed at the cathodes at the expense of the iron at the comparatively small anodes. The result is pitting, and the secondary limiting factor is the precipitation of the less-soluble ferric compounds (ferric hydroxide) at the pit mouths. If the soil water has dissolved chlorides, nitrates or sulfates, the resulting compounds are more soluble and less protecting. Silicates and carbonates, in the more alkaline soils, form very tough protective coatings.

The texture of these soils has a marked influence, other things being equal. The exclusion of oxygen at the contact of a soil clod with the line can produce an anode, with pitting. In finer textures, the number of anodes is increased, and the cathode area correspondingly decreased—with resulting slower and more uniform corrosion. Rogers[5] has suggested that loose backfills might be responsible in part for the high initial pitting rate.

As more and more oxygen gains access to the buried line, the cathodic areas grow, and the pitting intensifies as the anodic areas decrease. The anodic polarization becomes the limiting factor, and the half-cell potential of the line as a whole becomes more electropositive. When a great excess of oxygen is available, the hydrogen film may be entirely removed, and a new equilibrium established. An oxygen-concentration cell may

[8] Figures refer to bibliography.
* Hydrogen-ion concentration.

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form, the gas dissolving probably in a thin oxide film formed on the metal, and the cell potential being determined by the electrode oxygen pressure and the concentration of hydroxyl ions. As the latter are negative, an increase in their number lowers the potential of the electrode, contrary to the effect with the hydrogen electrode of an increase in hydrogen ions. An excess of oxygen of this magnitude tends also to oxidize and precipitate the ferrous ions at the remaining adjacent anodes, clear down to the base metal. At pit mouths, the anodic currents are reduced by precipitation of the less-soluble ferric hydroxide. It is possible, then, that a whole section of the line may become cathodic to an adjacent section of the line that is less well-aerated. The comparatively large geographical displacement of the anodic and cathodic reactions is then observable in long-line currents. At the same time, the resistivity of the soil becomes more important as a control of the rate of corrosion. Inasmuch as the current densities are higher at the anodes (the anodic areas being smaller), the resistivities adjacent the anodes are more pertinent. It is noteworthy that the same factors that reduce the aeration within a soil tend also to promote a lower resistivity.

The cathodic part of the line may remain passive for some time after the excess oxygen has been removed. The presence of chlorides especially, and sulfates or nitrates, tends to destroy this passivity and to start local pitting again. The variation of long-line currents with rainfall, for example, is a familiar experience.

E. Corrosion Processes in Alkaline Soils

In alkaline soils (pH 7.0 to 9.5) the net half-cell potential of a pipe line tends to become more electropositive. In the anodic areas, the reduced solubility of the ferrous hydroxide causes it to form a more gelatinous and protective layer. The increased solubility in soil water of the silicates and carbonates makes these radicals available for precipitation of hard protective coats. Anodic polarization becomes the corrosion-limiting factor.

The presence of large amounts of dissolved salts whose anions form soluble salts of iron (—Cl, $—SO_4$, $—NO_3$, etc.) prevent the formation of insoluble protective layers. Under these conditions the increased number of ferrous ions in solution at the anodes tends to reduce the anodic polarization, and the half-cell potential of the line becomes correspondingly more electronegative. These salts are, therefore, one of the important factors in alkaline soils in the determination of the corrosion rate, as they are in other soils.

At the cathodic areas, the half-cell potential is increased as before by the presence of oxygen. Due to the smaller amounts of hydrogen at these points oxygen, in lower concentrations, can passivate the surface and create extensive sections that are almost entirely cathodic. The resulting long-line currents are found to be a more reliable means to locate corroding areas, and the inverse correlation of corrosion and soil resistivity becomes better.

PRACTICAL SOIL TESTING

Before choosing the method to be used in making a soil survey, a pipe line technologist must determine the use to which the information is to be put. If he wants to reduce the occurrence of leaks, avoid reconditioning expense, and reduce hazards, he must try to deduce the behavior of a soil in regard to pitting. An accurate knowledge of weight loss would be of little use. If he wants to reduce over-all long-time operating costs, he should try to predict the reconditioning program, and determine if and where the present cost of protection is justified. The distribution and rate of corrosion are most pertinent to this problem.

A. Consideration of Ultimate Purpose in Making Soil Tests

The "corrosiveness" of a soil is rather hard to define. Pipe-liners are likely to look at it from the standpoint of the number of leaks that need fixing. The pipe-wall thickness, then, illogically becomes a part of the corrosion picture; and soils that would not be corrosive to thick pipe because of gradual cessation of active corrosion would be corrosive for thinner pipe. In that which follows we shall develop one definition of corrosiveness that is entirely related to the soil.

An ideal survey should yield data from which the progress and type of corrosion reasonably can be predicted, so that the choice both of pipe wall and protective measure can be determined economically. Future savings are the only justification for making the survey.

B. Soil Tests Examined in Light of Corrosion Experience

The best possible criterion of the value of a given method of survey is whether its predictions agree with experience.

1. The Statistical Nature of Corrosion Data

When we examine experience for suitable criteria of corrosiveness, we are confronted with the highly statistical nature of the data. Two adjacent joints of corroded pipe in substantially the same soil can show extreme differences in corrosion. It becomes apparent that corrosion data from pipe lines in any one soil can be reduced to consistency only by taking averages over great lengths of pipe; and criteria of "corrosiveness" are available only in terms of the probable number of leaks per 1000 feet, or mean depth of maximum pit per unit length, or the average loss of weight per square foot, as a function of time. We do not possess the multitude of careful measurements and statistical analyses needed to reduce corrosion experience to the exactness of actuarial data. Many very able analysts have made substantial inroads into existing data, emerging with several interesting relationships. Ewing[1, 2, 9]; Martin[3]; Rhodes[4]; Evans[7]; Logan, Ewing, and Denison[17]; Logan,[10] and many others are gradually producing order out of chaos in corrosion measurements. Reference 13 contains a good modern bibliography.

In order to illustrate the interpretation and use of data taken from corrosion measurements, we shall use one of several possible approaches.

a. Suppose we have a leak history from an old pipe line, and know the distribution of the corrosion experience in each type of soil. Suppose we have measured the depths of the first hundred deepest pits on each joint of corroded pipe.

If we use log-log graph paper and plot the total number of corrosion leaks in each soil as a function of the age of the line, we obtain a substantially straight line for the earlier part of the data. The lines thus plotted tend to break and follow a different slope, usually at about the time the corrosion process was disturbed by reconditioning or by preventive measures.

The approximate time of occurrence of the first leak is the time at which the line crosses the log-time axis.

This is a good beginning, but the curve is of little use for predicting what a new line will do in the same soil. If the new line were half as long, we should expect the total number of leaks at a given time to be fewer. If the new line has a thinner wall, the expected cor-

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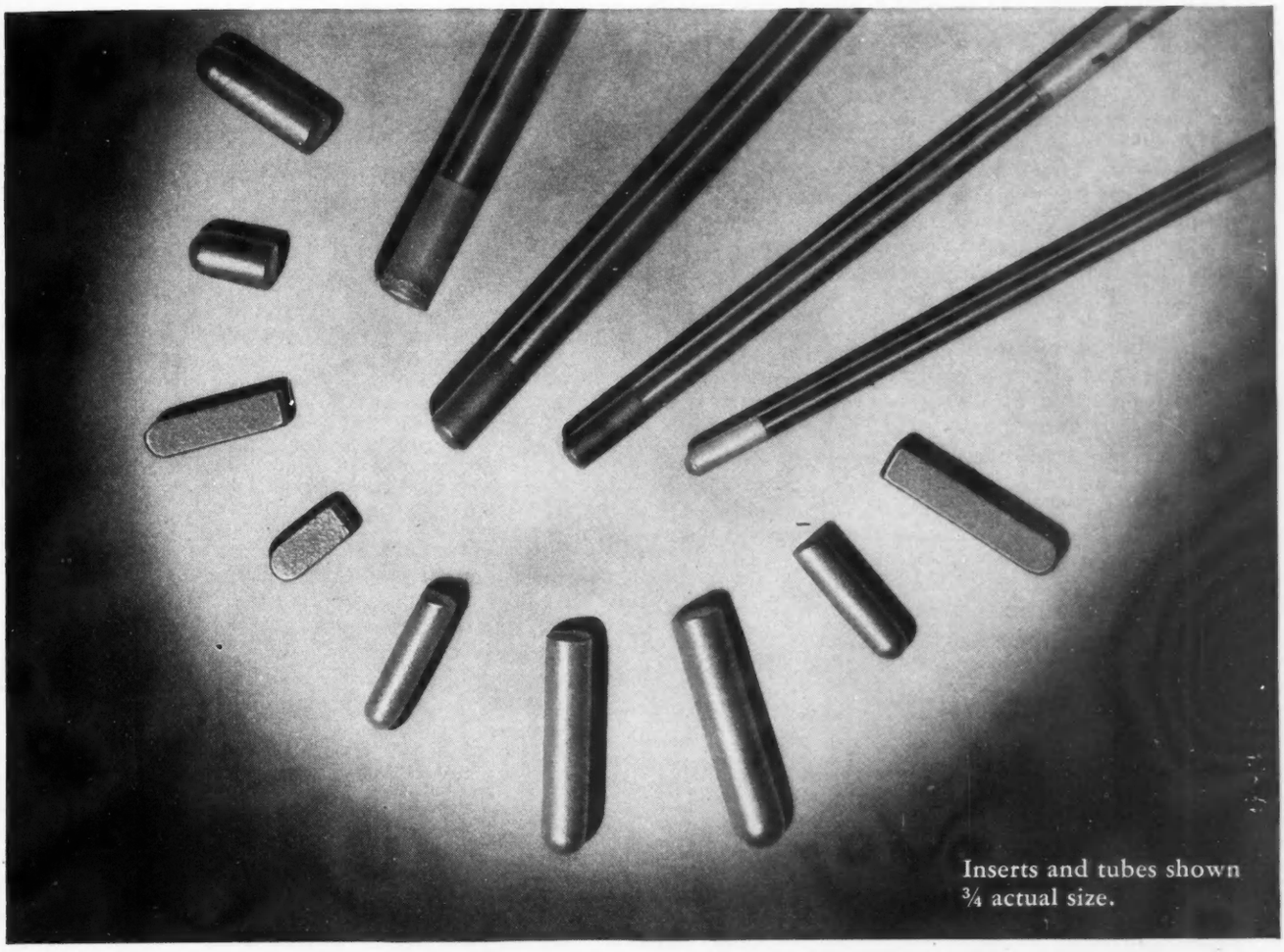

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rosion corresponding to some of the deeper pits in the old line will respresent punctures in the new line. This would increase the number of failures on the new line at any time. It becomes evident that we must find from the data how the probable depth of the deeper pits depends upon the exposed pipe area, and also how pitting progresses with time. G. N. Scott[13] has approached this problem, and has deduced a "pit-depth area" relation: If we take the average depth of the deepest pits on each of our joints of pipe, and let the area of one joint be the unit of area, we have two correlated values. If we do the same for two successive joints considered as one, we shall obviously obtain a greater average value of the deepest pit associated with an area of two units. As we increase the number of joints in each grouping, we get larger values of the average deepest pit—until the final group includes all the joints, and the single deepest pit of all. If we plot the set of data thus obtained on log-log paper (in effect the logarithm of the average depth of the deepest pit against the logarithm of the area associated with it) we again obtain a substantially straight line.

While we have taken Scott's relation for the purpose of this illustration, it would be well to call attention here to the shortcomings of the method of analysis. The problem of pit distribution is still a moot question. The following comments are made in the hope that operators will become interested, if not in the analysis, in taking careful measurements of the corrosion found on old lines. Such data should include pit-depth measurements of, say, the first hundred deepest pits on each joint of pipe in each type of soil. If a larger number of shorter units of length is used, correspondingly fewer of the deeper pits per unit could be recorded. These data—with pipe size, age, and the type of soil causing corrosion—will yield eventually better information on the statistical distribution of pits.

The most obvious objection to the calculations made to plot Scott's relation is that there is no *a priori* reason for grouping the original unit areas as they come rather than in any of several other possible orders. Ewing[2] has shown how the data may be treated to obtain the best average from all possible groupings; when this has been accomplished, the graphs on log-log paper are smooth curves, but usually not straight. He derives a semi-log relation that produces a somewhat better set of curves. While all the lines are not straight, the number that curve one way are about equal to the number curving the other. In general, the relation:

$$P = P_1(C \log A + 1)$$

Where:

P_1 = average depth of deepest pits on all unit areas.
C = constant.

provides a generally good fit to the calculated data.

A method of treatment proposed by Rhodes[4] uses the average depth of the deepest pits on all 1-foot lengths as 100 percent on a linear ordinate scale showing "percent depth of pit." Against this is plotted, on a logarithmic scale, the average *number* of pits per foot whose percent depths are equal to or greater than each corresponding ordinate. The result obtained by this method, using 30,000 pit measurements, shows remarkable consistency between data plotted for averages from 18-inch samples and averages from whole pipe joints.

While it is not the province of this paper to propose a definite procedure in arriving at a pit-depth area or pit-depth time relation, it is desirable to point out that a satisfactory explicit relationship must be found in order to evaluate "corrosion experience" in terms of tangible quantities. It is hoped sincerely that pipe-line technologists interested in corrosion will study this problem, and accumulate the necessary data for its solution.

Returning now to Scott's relation which we were using to illustrate interpretation of corrosion data, we can translate the graph obtained into words. It says that the average depth P of the deepest pits on a number of areas A units big will be $P = P_1A^a$: *where* P_1 is the average depth of the deepest pits on many unit areas; and a is the slope of our graph.

b. It is noted that $P = P_1A^a$ says nothing about time. The relation was derived from many samples of the same age. The exponential nature of the relation of pit depth with time is given by the leak-time curve, so that by combining we have:

$$P = kA^aT^n$$

Where:

P = average depth of deepest pit on many areas A units big after T units of time.
k = mean depth of all deepest pits on all unit areas at unit time.
A = total area in terms of unit areas.
a = exponent in Scott's equation.
T = age of line expressed in units chosen.
n = slope of corrosion-time curve.

This equation contains all the elements needed to describe quantitatively the corrosion behavior of a pipe of any wall thickness in any soil *if* the constants are known accurately. Anyone attempting to base predictions upon it should know the amount of uncertainty in each constant, and should criticize his prediction by determining the range through which it might vary because of these uncertainties.

The value of k can be defined conveniently as the corrosivity of the soil; n has been found to correlate inversely with the aeration of the soil; a varies between different soils, but so far has not correlated with any one property; k, n, and a thus describe the corrosion behavior of a soil, independently of pipe-wall thickness. Incidentally, the slope of the leak-time curve is $\frac{n}{a}$ in terms of these constants, so that one must be known to determine the other from the leak history.

If we had such a large amount of measured corrosion experience that the value of these numbers were determined accurately for each soil and the accuracy of the relation were proved sufficient, we should have the tool with which to predict the corrosion losses to be expected on any substantially long stretch of line in any one soil. A soil survey would then consist chiefly in identifying the soils.

However, we do not yet have these constants within anything corresponding to good engineering limits, and for many conditions they are not determined.

c. A simple analysis of the errors possible shows that the percent uncertainty in the value of P is:

$$\frac{\delta P}{P} = \pm \sqrt{[2.3\delta a \operatorname{Log}_{10} A]^2 + [2.3\delta n \operatorname{Log}_{10} T]^2 + \left[\frac{\delta k}{k}\right]^2}$$

Where:

δa, δn, and δk are the uncertainties in the actual values of a, n, and k. Obviously, if we try to predict P for areas much larger than the units used, or for times much longer than the time of our experience, the result rapidly will become useless. A sample of the calculation of these errors from a set of corrosion data is given by Logan[10] in a confidential paper.

d. Lacking accurate values of the "soil constants" for many soils, several investigators have tried to devise short-time tests, the results of which can be trans-

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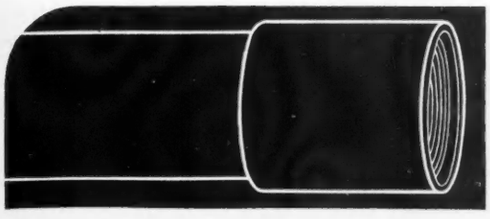

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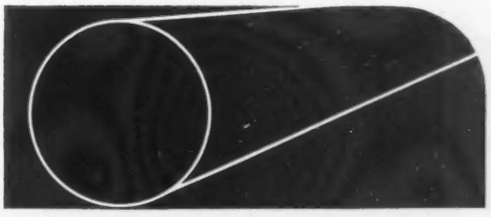

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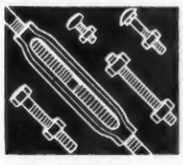

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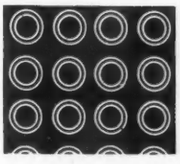

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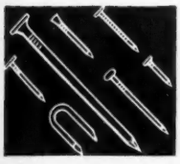

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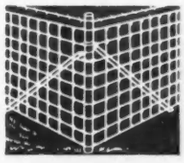

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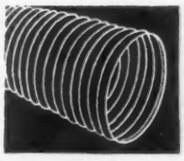

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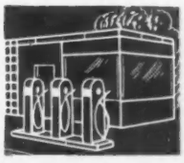

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lated into these constants. Eminent among these are Denison,[16] and Logan, Ewing, and Denison.[17] The method used by these men is to construct an electrolytic cell in which soil is the electrolyte. The water content and packing of the soil carefully is controlled. The anode is a steel disc separated a short distance from the cathode, and the latter is arranged to be aerated by oxygen that diffuses through a layer of the soil. It is thus that most of the important elements of corrosion are represented in the cell. It is found that after short-circuit for a suitable time, the weight loss and pitting of the anode, on the average, will correlate well with similar quantities found by burying specimens in the soil tested. If they measure the cell potential as related to current density and determine from a graph the mean current density between 0 and 0.3 volt, they find a correlation between the mean current density and corrosivity k expressed by:

$$P = 4.2\,I + 52$$

where: P = average depth of deepest pits in mils on 1 square foot of buried sample after 12 years. In this equation, $P = k$, if the unit of area is 1 square foot and the unit of time is 12 years:

I = average current density, in milliamperes per square decimeter, in the corrosion cell, between 0 and 0.3 volts.

The standard error in the correlation of P is $\pm$ 26 mils. Perhaps the best values to date of the soil constants are given by Logan, Ewing, and Denison in this paper.[17]

It is thus seen that the value of soil tests of this nature is steadily increasing, and that interpretation of data from experience is becoming more exact and usable. The pipe-line technologist should, at the present time, make sure that he understands the definitions, reasoning, and experimental limitations back of any "corrosion formula" he wishes to use. Only under these conditions can he see where he may expect a good enough batting average to make his soil survey of real value.

2. Empirical Evaluation of Soil Tests

In the evaluation of soil-survey methods, it is axiomatically true that hindsight is better than foresight. Ewing[9] and Denison and Ewing[15] make use of this principle. The investigator examines the corrosion experience, such as leak repairs made in each soil after a given lapse of time, or such as the percent of line reconditioned or replaced in each soil at a given time, etc., in relation to soil-survey methods. The procedure followed by the investigator is to approach the data, as it were, from the back door and ask himself: "Suppose at the beginning I had applied criterion x to determine where corrosion protection was needed, how much would I have saved in operating costs at the present time if the protection was y percent effective?" For instance, if he had decided to coat all line pipe in soil of resistivity less than 1000 ohm centimeters, and the coating would have saved 75 percent of the replacement costs where applied, he can calculate from soil-survey data the amount of line that would have been coated, the location of coatings, the saving in repairs, and the cost of coating. By repeating this process he finds out, for each value of resistivity used as a criterion:

(1) How much the use of each value of resistivity used as corrosion criterion actually would have saved.
(2) How well the indicated location of coatings corresponds to "hot spots."
(3) How much coating is wasted.

He can repeat the process for another criterion such as total acidity, correlating any desired data from experience with different values of acidity. He can correlate, instead of costs, any other determinable item in corrosion: such as percent of pipe replacement in 20 years, or average number of punctures per 1000 feet with one or a combination of soil properties that can be measured such as pH, total acidity, resistivity at saturation, salt content, depolarizing effect of the soil in a test cell, etc. The use of this line of attack is to be recommended as a valuable means of arriving at the most useful type of soil survey to make.

Ewing[9] shows the application of this method in acid soils. He finds that the correlation between hot spots and acidity alone is almost nil, and that a meager correlation exists betwen resistivity and repairs. However, he gets a better correlation by plotting the product of "percent repairs to date" times "ohm centimeters" in each soil type against milli-equivalents of acidity per 100 grams of soil. The straight line fitting the correlation best gives the relation:

$$P = \frac{8{,}000\,(A - 5)}{R}$$

Where:

P = percent of line repaired in one soil type (33 years).
A = average milli-equivalents of acidity in that soil.
R = average ohm centimeters resistivity of that soil.

A and R are averages over wide areas for each type of soil. Economic criticism of this relation is obtained by determining at what value of P coatings should have been used, by the cut-and-try method illustrated above. In the example cited, a saving of 16 percent could have been realized in total maintenance cost up to the time of investigation. Ewing also classifies the soils according to corrosiveness as indicated by experienced corrosion alone, and again applies the economic test to the coating problem. As expected, this gives the best answer, and reduces further tests to identifying soils.[9]

It is evident that, in these soil types, a useful survey would be one that determined total acidity and resistivity. The soil-survey data could be used to determine how much and where a coating should be used.

By inspection it is seen that this formula breaks down if A approaches 5 milli-equivalents of acid per 100 grams. Its use is *a priori* limited to the soils from which experience is drawn. From what we know of corrosion activity in mildly-acid soils, the above relationship is not unreasonable.

CONCLUSION

In conclusion, we might outline a rational procedure of surveying soils, and of establishing from the survey data a useful criterion for pipe protection.

A. The Rational Procedure to Follow in Soil Testing

The technologist should bear in mind the ultimate use to which the survey will be put, and the principles of corrosion in its many forms in different soils. He should then:

1. Map the soils traversed according to type as determined by:

a. Texture (coarse, fine, colloidal, etc.).
b. Aeration (wet or dry, access to air, etc.).
c. Water (pH, average moisture content, variability, etc.).
d. Total acidity.
e. Dissolved salts (especially Cl, SO_4, NO_3, CO_3).
f. Resistivity.

These values of measured quantities can probably

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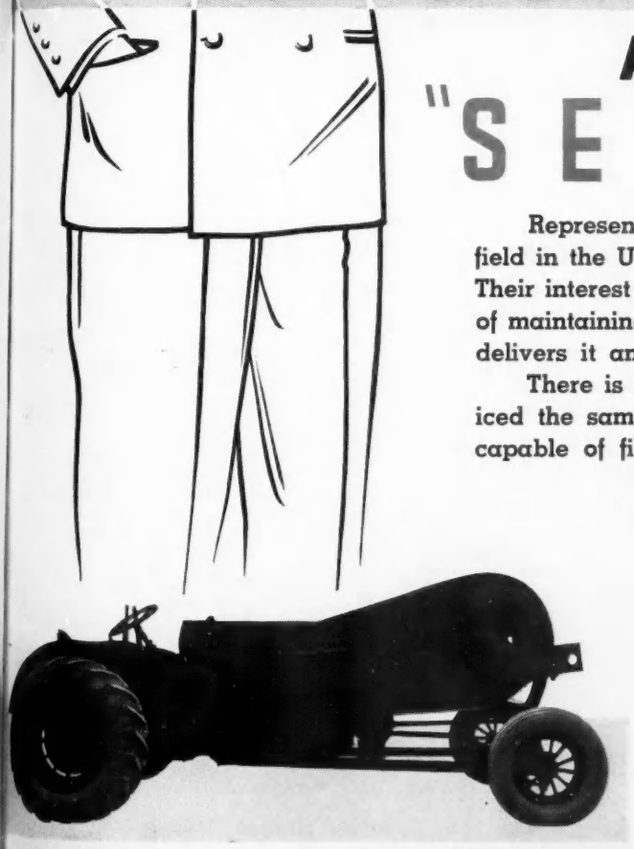

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best be the averages of well-distributed tests in each soil type.

2. Obtain numerical data from other pipe lines in these or similar soils on their corrosion experience. From this, and soil samples, he can:

a. Determine "soil constants" from experience of other lines.

b. Correlate "soil constants" with soil test data. From this a usable correlation of some soil property with experienced corrosion might be found.

c. Subject any proposed criterion of soil corrosiveness to the cut-and-try tests above to correlate the predictions of the method with experience.

3. Establish criteria that may be used in the field to locate coatings with the best probability of success.

There is little doubt that, as time goes on, better means of soil mapping will be available. At present there are few corrosion technologists who feel confident of recognizing many of the soil types of even the U. S. Bureau of Standards tests. Perhaps, by the interchange of information on corrosion experience and the critical examination of proposed criteria of corrosiveness, these criteria can be boiled down to usable forms in each region. In the meantime careful measurements of the effects of corrosion on old lines and rational analysis of the data in correlation with soil properties will improve our understanding of the phenomena, and will furnish useful tools in combating corrosion.

ACKNOWLEDGMENT

In closing, the writer wishes especially to thank Messrs. Scott Ewing, I. A. Denison, G. I. Rhodes, and H. E. Haring who have been kind enough to read the manuscript of this paper and to offer many valuable suggestions.

APPENDIX

A. Comments and Suggestions from Scott Ewing

In addition to several illuminating comments upon corrosion in the presence of oxygen in acid soils, and the effect of dissolved salts in alkaline soils, Scott Ewing gives us the relation between annual cost and corrosion determinants in acid soils. Referring to his paper[9] he writes that further examination of the cost records yield the correlation:

$$C = \frac{790\,(A - 5)}{R}$$

Where:

C = average annual cost of maintaining the pipe line, in dollars per hundred feet, over a period of 33 years.
A = milli-equivalents of soil acid per 100 grams.
R = ohm centimeters resistivity,

and A and R are averages over wide areas in each type of soil, as before.

B. Suggestions of I. A. Denison

I. A. Denison suggests the following method in recording pit depths: ". . . . to divide each pipe length into a certain number of equal areas, and to measure all of the pits above some minimum pit depth on each area. This need not be done for every joint of pipe in each soil type, but for some definite fraction of the total length, such as every fourth joint." The data obtained in this manner can be analyzed by any of the methods proposed by Scott, Ewing, Rhodes or Martin.

The principal requirements of useful measurements are:

1. Inclusion of *all* pits in each unit area deeper than some arbitrarily-set standard.

2. Measurements on contiguous groups of unit areas, to include several units of area.

3. Distribution of these groups as widely as possible in each soil type.

4. Other data such as age, size of unit area, and complete description of soil.

C. Comments of G. I. Rhodes

The work of G. I. Rhodes on the statistics of pit distribution yields a precisely defined curve. Mr. Rhodes notes that the semi-log relation, found by Ewing to fit best his pit-depth area data, is of the same form that would be used if the best straight line were drawn to fit Rhodes' data. The precision obtained from the large number of measurements used by Rhodes indicates that the semi-log relation really is a curve, and the safest extrapolation is made on that basis. Mr. Rhodes invites communications from those interested seriously in promoting and studying this type of analysis.

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† National Tube Co., Pittsburgh, Pa.
‡ Cambridge University, Cambridge, England.
§ Bell Telephone Laboratories.

Tropical Shooting

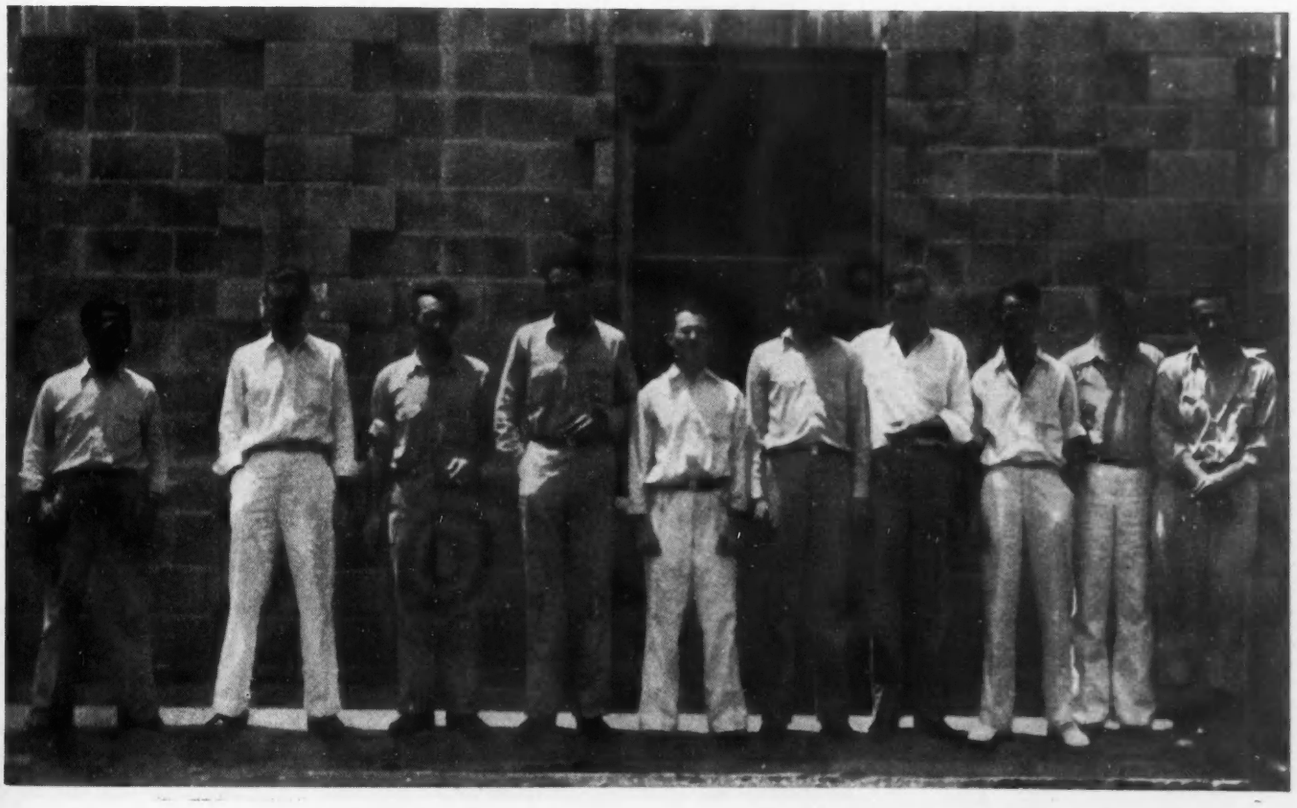
IS A FAR DIFFERENT SONG FROM THAT SUNG BY THE BOYS AT HOME

By WILLIAM V. GROSS,
Foreign Editor

THIS is the saga of a bunch of boys who got a taste of geophysics in the United States, but who were all young enough in ideas, if not in years, for the romance of the tropics to have a strong appeal.

The result is that they're busy now in Colombia, South America, and they're finding out just how much is romance and how much is darned hard work. And even though the job has turned out to be less of moonlight and roses and tropical smiles than possibly anticipated and much more of man killing work, the thing that impresses the casual visitor to one of the camps is the fact that not a few of the men are in love with their work. There is sort of an

Home-made condensing plant for purifying drinking water out on the job. It consists of a 10-gallon gasoline can for the boiler, a home-made steam dome, and about 10 feet of pipe to bring the water through the condensing trough.



Barranca Bermaja is one of the headquarters used by men shooting Colombia. Reading from left to right, this group includes Flamingo Joacme, Charles Cook, Ray Carter, Johnny Lewis, Francis Leach, John Henery, E. W. Berry, Reagan Ferguson, Jack Hudspeth, and W. M. Platt, all doing work for Shell de Colombia.

Francis K. Leack, standing in water to his hips, here illustrates what an observer might run into just any day on a seismograph job in Colombia. Notice how the instruments have been elevated on a table to keep them out of the water.

"esprit de corps" among them that reminds one of tales of the army scouts back in the days when Geronimo was on the rampage in the old west.

"Back home it was a case of pile into a truck and be long gone for the location. Down here it's a problem of wondering whether you're going to get the heck kicked out of you while loading an amplifier on the back of a rebellious mule.

"Back home we carried a can of water picked up at the office or warehouse in town. Down here, unless we're working out of one or two of the larger cities with regular water purifying systems, it's a case of knocking a knot on the head of the guy who tries to bring water with him in a container. We have to distill and condense the stuff if we expect to spend more of our time working than we do communing with nature in the posture of that famous piece of statuary called 'The Thinker.'

"Back home, when the day's work is over, we get to a good bed. Down here we get to a bed, but you can't qualify it as good, unless you are an optimist. Camp beds and hammocks simply don't fit into that classification."

Those are a few remarks picked up at random from talking with some of the men in the field.

For those of you at home who are shooting for this company and that—in Texas, Kansas, Oklahoma, California or other localities—something of what the boys have to go through with in Colombia will have a tendency, perhaps, to make you a little more satisfied with life.

On the average assignment in Colombia, or Venezuela, too, for that matter, the chances are fair that the region hasn't even been mapped. Some rock hound may have spotted something from the air when flying off beaten tracks. Whether there are roads or trails or rivers leading into the area is not his worry. Neither is he concerned about the sociability of the natives there, if any.

So, when the party chief gets his instructions to go out and shoot a certain area, his first job is to check up on the medicine chest, fill the gaps and attempt to anticipate how much more or less of this and that pill and medicine he will need on this trip than he did on the last. He knows, possibly from experience, that lack of preparation for accidents and things that happen in the tropics is a serious thing. He knows, too, that his men might be willing to put up with almost any hardship, but that they won't tolerate for a minute

Charles Cook, Geophysical Service, Incorporated, crossing a cienega (swamp) bridge which the crew had to build to get materials in to the shooting grounds. Construction of the bridge is similar to that of a corduroy road.

Mules leaving a base camp of a seismography party with casing consigned to the field camp located 15 kilometers back in the jungle. In some parts of the country, mules provide the only means of transportation.

stinginess so far as the medicine chest is concerned. (One outfit the writer heard of plunked down three thousand dollars at one whack for first aid materials and medicines for its shooting crews.)

Passing from the role of a pseudo M.D., the second phase in preparation for the trip requires that the chief become a horse trader, or rather a mule trader. Sometimes he has a man Friday in the safari he can depend upon for obtaining mules. Sometimes not. Sometimes he charters from a regular muleteer a whole pack train. But in any event, he has to know something of mules to keep from getting stuck.

Next he has to pick native men who are good packers and who know the savannah or jungle, whichever it might be. Sometimes as many as a hundred of these are required if the party is a large one. He knows he will not end up the trip with that many, for when the night wind sighs through the trees of the monte the homing instinct is irresistible to some of the packers. To some of them advance notice of intention to resign is irrelevant, immaterial, and burdensome to the record. A favorite time for departure is after the rest of the camp is asleep. Their absence often is not known until the next morning. Some will tell you the departure is not due so much to homing instinct. If the crew is shooting in territory near that supposed to be inhabited by reputedly hostile Motilone Indians, they will tell you the ones who left probably thought they heard the jungle whispering of the nearness of the Motilones.

On some jobs all the equipment has to be loaded on the mules; instruments, drill pipe, casing in some cases, explosives, water distilling outfit, foodstuffs, and the like. And there have been times, when the going was too tough for the mules, when the men had to substitute for them. After losing a few boxes of supplies, one of them possibly containing his own clothes, a crew man in the tropics learns soon that a burro can't be depended on in swampy country. They say a mule can swim with a light load on its back, but that a burro simply doesn't choose to. Being something of a fatalist anyhow, he merely gives up the ghost and drowns, regardless of whether he's loaded with a batch of notebooks and data or the only remaining jar of jelly in the outfit. And if the notebooks contained results of a week's work it is possible that their loss might be felt as keenly as that of the jelly.

Much of the food carried is canned. But the crews like to use as much fresh stuff as possible. Hence it does not take a man long to learn how to live partly off the jungle. He finds out from watching the natives which herb, vegetable, or plant is edible. Some of these tempt his palate. Others he probably never will learn to like. He finds out, too, what kinds of game and fowl are good to eat. These afford relief from tinned meats.

The camp bath at one spot was an interesting thing. It was sort of an upside down shower. Freshly hewn saplings were laid in a platform almost in the water. They were spaced a few inches apart. A bath was obtained by the process of squatting on the saplings, reaching down between them and bailing up water to rinse off the soap. The men are not very strong on getting in the water itself. They have seen too many things in the streams, alligators, for instance.

Yes, sir, tropical shooting is a far different song from that sung by the boys at home, even different from that sung by the fellows in bayou-laced South Louisiana.

A jungle hen and a wild turkey killed by W. M. Platt, left, and E. W. Berry, right, to provide fresh meat for the camp. Platt, incidentally, hails from Dallas, Texas, where he first started working for Geophysical Service, Incorporated.

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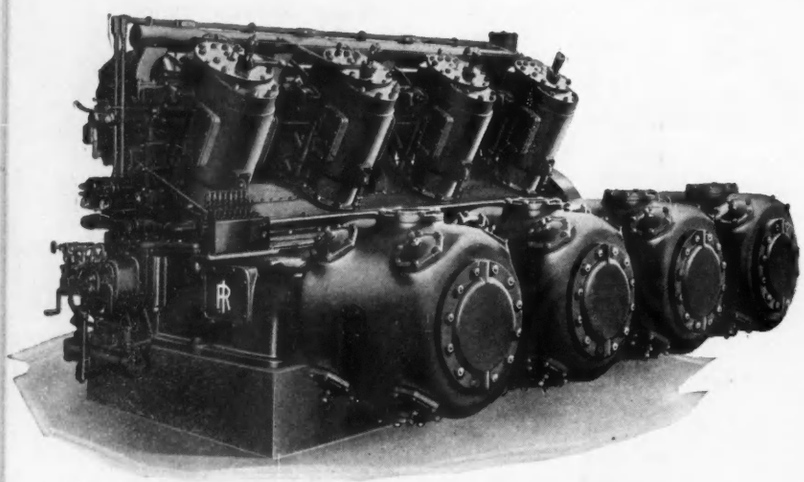
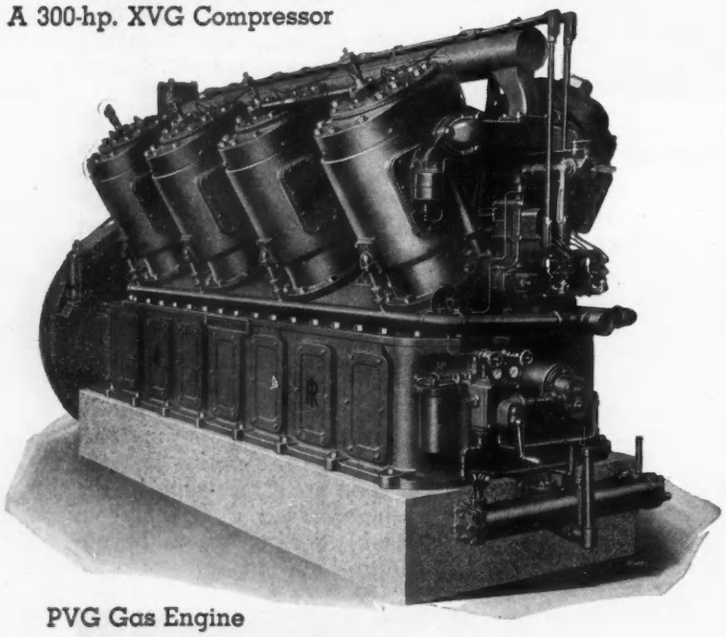


A 300-hp. XVG Compressor



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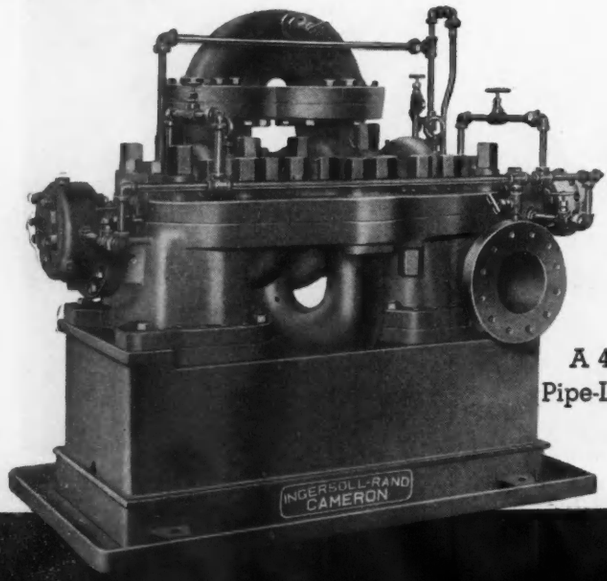

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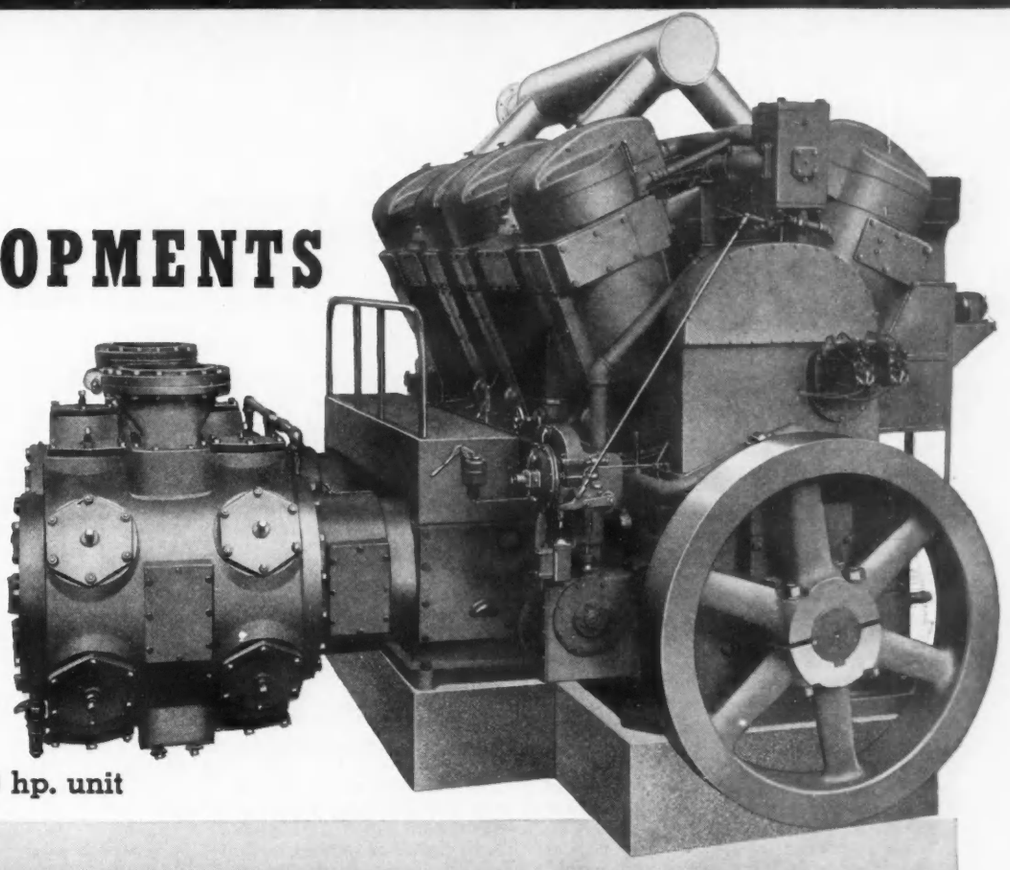

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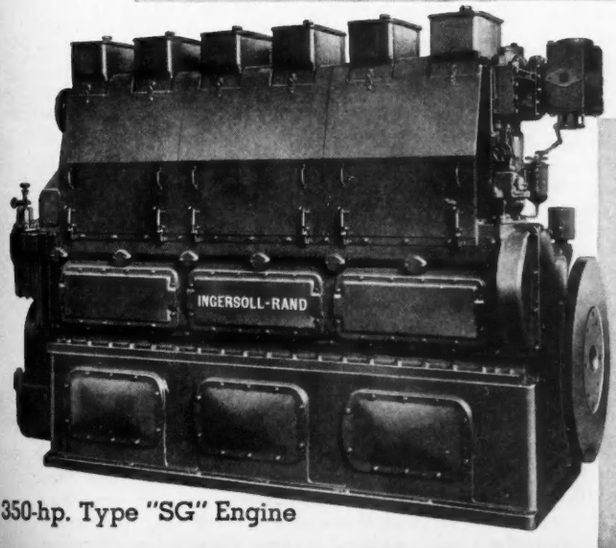

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WORLD DEVELOPMENT and TECHNOLOGY

Edited by
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Colombian official promises no expropriation

"Equity is too sacred a thing to the Colombian to ever permit of expropriation of private enterprise in this country on grounds even remotely resembling those allegedly responsible for expropriation of the oil industry in Mexico." Thus spoke Dr. Cesar Pedraza, director of the Colombian department of petroleum last week in Bogota in an interview granted THE OIL WEEKLY exclusively.

When the interviewer observed that conservation with the average Colombian business man left one with the impression that the country seemed made up of a people possibly more legal-minded than others of Latin American countries, the doctor countered with:

"The supreme court of this nation jealously guards its powers and would vigorously oppose anything that looked like it was making inroads into it or sapping its authority. It has been a doctrine and a custom and a law in Colombia that the judicial power is independent and shall remain independent from the legislative and executive powers. The three of them are independent one from another. And although it sometimes works to the seeming disadvantage of those representing the government, any decision of the judicial power is a law for the executive power—and distinctly not the other way around.

"That, plus the love of equity built up in a national group of lawyers who start their legal training in their early teens, is Colombia's assurance of the protection of incorrupt, sanely operated private business—large or small, foreign-controlled or domestic.

"A case in point was provided by one of our larger tax suits in which the government tried to collect from Andian Pipe Line Company considerably more tax than the company thought it should pay. Something better than a million dollars was involved, I believe. The supreme court studied the case and told the federal attorneys: 'Boys, the Andian is right; the government is wrong.' And so the Andian did not have to pay.

"Some of the foreign controlled oil companies, immediately right after the expropriation of oil properties in Mexico on March 18, became alarmed over possibilities of what might happen in other Latin American countries. Eventually, officially or unofficially, this feeling of alarm was carried to certain branches of the Colombian government. One group of foreigners, not Americans, injected a note of two tones of fear—one that foreign enterprise might not be protected in Colombia, the other that preference in Colombia was being given Americans over other foreign nationals in the granting of business privileges and concessions for industrial development, including oil concessions.

"England is farther from us than America of the North. English are more conservative and apparently do not make friends as quickly; they are a little more aloof, perhaps. It is largely a geographical and communicational problem that is responsible for that feeling. Yet, it was and still is easier for us to do business with the American companies than with the English ones."

Sure of his ground, Dr. Pedraza didn't hesitate to speak his mind, whether he was right or wrong. A listener-in on the interview remarked that, right or wrong, what the world needed was more government men who absolutely refused to hedge when giving an opinion. What do you think?

Colombian oil areas hit by flood

Rains, which have made islands of Cucuta and petroleum region of Catutumbo for a week, began abating December 1, according to word received from William V. Gross, THE OIL WEEKLY's foreign editor, who is stranded temporarily in Bogota, Colombia. Roads to Cucuta and Catutumbo will be impassable for several days. Emergency rations of food are being flown to distressed areas. Puerto, Santander and Villamizar are said to have been practically destroyed.

Oil companies obtain Mexican court relief

Two Standard Oil Company of New Jersey subsidiaries, Mercedes and Titania Petroleum Companies, obtained from the Second District Court stays of execution against the Mexican government's action in expropriating their concessions and goods in the Monterrey and Reynosa zones near the border, in accordance with the general oil company expropriation decree.

Titania is also to receive back all goods taken from it in the Rio Bravo region.

But the Tampico district court rejected application of the Charro Company, operating jointly with Titania in Rio Bravo zone, for return of its expropriated properties.

The above court decision was the first to be won by an American owned company since the petroleum properties were expropriated last March 18.

The court issued a temporary restraining order against government occupation of the undeveloped oil lands of the two Standard of New Jersey subsidiaries. The order will be in force while the court decides on the companies' application for injunctions to prevent the government from seizing the lands, situated in Tamaulipas and Nuevo Leon states, near the United States (Texas) border.

Gasoline from Mexican oil enters Sweden

Successful shipment to Sweden of 7300 tons of gasoline refined in Houston from Mexican government oil was reported to the ministry of foreign relations by the Mexican legation in Stockholm.

Of this consignment, the legation said, 4700 tons were unloaded without difficulty in Ninashamm, but discharge of the rest, consigned to the Skandinavis Katank of Malmo, was held up by an embargo obtained by the Batavia Petroleum Company. The consignee, however, the report declared, proved to a Swedish court that the gasoline was of legal origin and the embargo was lifted.

According to the legation, Batavia was ordered to pay court and other costs of the embargo.

Engineer's Resignation Asked

Resignation of Pedro Felix Sandaarval, a practical engineer employed by the Coatzacoalcos unit, Vera Cruz, of the National Oil Workers' Union, has been asked, because it is charged that he supplied certain of the expropriated oil companies with secret information regarding the union and the government's operation of the oil business.

Mexican Production Estimated

Pemex having resumed its policy of secrecy regarding oil production, it is learned from authoritative private sources that the national output in September was about 3,450,000 barrels; and that of October is estimated at some 3,520,000 barrels. This makes Mexico's production from March 18, expropriation day, to October 31 a little more than 20,000,000 barrels. A production of around 40,000,000 barrels is anticipated for this year.

The gasoline import tax has been fixed at four centavos the liter for December. The ministry of finance has pegged the dollar at 4.90 for purposes of paying federal taxes in foreign money during December.

Pemex to disburse from savings funds

Pemex has called false reports to the effect that it lacked funds to make disbursements from the oil workers saving fund, and declared that it was to pay off the workers from this account during the first half of December to the extent of some 2,000,000 pesos (about $40,000). It added that a total of 6,900,000 pesos was to be divided among the workers from the savings fund, which was created during the companies' regime, from deductions from salaries and contributions by employers.

During the companies' regime, Pemex said, employers' contributions were from 3 percent to 8 percent of wages, but they are now 10 percent. Savings fund disbursements will be made every December, says Pemex.

Mexican workers to consider problems

Disgruntled elements of the Mexican oil workers who have been officially branded as agitators are arranging a national convention for Mexico City in the near future, to seek solution of problems that sponsors of the convention call urgent.

These matters include immediate payment of house rents for workers, particularly those of the southern fields, revision of work contracts as a consequence of expropriation, operation of the industry by the workers, and revision of wage scales.

The government scorns moves for this meeting, asserting that it is doing everything possible to improve conditions for the oil workers. Nevertheless, it is understood that the government will not forbid holding the meet, although the general opinion of the oil workers union is that such a convention would be now impolitic and unpatriotic.

Atlantic Refining ships rig to Cuba

A step which may mark the beginning of the development of Cuba as one of the world's important oil countries was taken November 28 when Atlantic Refining Company shipped drilling equipment from Hardin Field, Texas, to be employed in drilling operations in Cuba's Santa Clara Province. The equipment will be taken by rail to New Orleans where the freight cars will be run onto a sea ferry for the passage to Havana. From Havana the equipment will be transported by rail and truck to the site of operations.

Atlantic Refining Company holds concession titles to several hundred thousand acres in Cuba. Since last spring, following passage of new petroleum legislation by the Cuban Congress, the company has been carrying on an extensive program of seismographic and other scientific work in an effort to determine the most promising locations for its first wells. For five years before this the company had been carrying on a study of the island's petroleum possibilities, employing a large staff of geologists and geophysicists for this purpose, but it was not until the passage of the new petroleum legislation by the Cuban Congress that the company felt justified in assuming the large risks and expenditures of exploratory drilling.

Under the old mining laws of Cuba, no separate consideration was given to petroleum. The usual safeguards, such as royalty payable to the government, taxation over a reasonable exploitation period, the right to appropriate the necessary surface areas together with the right to construct pipe lines and other necessary installations, were entirely lacking or were so ambiguously expressed as to require legislation to correct deficiencies. The new Cuban petroleum law for the first time gives reasonably satisfactory guarantees to foreign capital to encourage petroleum investments in that country.

Since the beginning of the century, oil geologists have on various occasions studied the possibility of commercial oil deposits in Cuba's lower Cretaceous (Chalk) region, with more or less negative results. Atlantic Refining Company's activities are the first of sufficient intensity and scope to give substantial promise of the development of the island as an important oil producing country. Volume production of oil in Cuba would greatly improve the economic position of the island, now largely dependent on sugar production.

Canadian conservation regulations are passed

The Alberta legislature last week passed new oil and natural gas conservation legislation giving the provincial Oil & Gas Conservation Board power to enforce its regulations, but not until provision for compensation to owners of naphtha producers, who were most seriously affected by conservation, had been written into the measure submitted by the administration.

Immediate issuance of an order establishing conservation in Turner Valley, Canada's only major oil field, was delayed pending official approval of its provisions by the lieutenant-governor in council under provisions of the new legislation. The order, besides holding natural gas wells to the available market demand for natural gas without regard to their naphtha yield, will set allowables for crude wells.

Written into the bill at the insistence of naphtha well operators was a provision declaring that within six months after the act comes into force, or earlier, the conservation board shall prepare a plan to compensate for injury caused by any orders pursuant to the act. The lieutenant-governor in council is given power to vary or revoke the plan, or to authorize the board to carry it out.

The compensation plan may be general in its application or restricted to such wells or classification of wells in any designated part of the province as advisable. The plan must take into consideration circumstances and conditions of injury, matters in respect to which compensation is payable and the persons and apportionment by whom such compensation is payable and the amount to be paid.

Provisions of the administration's bill placing orders of the board above question in the courts, not included in conservation legislation passed last spring and which resulted in thwarting conservation orders by court attacks, remained in the act as passed, but operators or individuals may appeal against the board's orders to the lieutenant-governor in council. Assessment for purposes of raising revenue for cost of operations of the board may be appealed to a judge of the Supreme Court of Alberta.

Fines for infractions under the act may be set between $100 and $1,000, with fines for infractions after warning set from $50 to $500 daily. W. F. Knode, petroleum engineer formerly of Corpus Christi, Texas, is chairman of the board that was continued as under the old act. Members are C. W. Dingman, former director in the department of lands and mines, and F. G. Cottle, former accountant in the board of public utility commissioners' office.

Whether the new act will be taken into the courts in an effort to have it declared ultra vires will probably not be decided until the board's plans are revealed with issuance of new conservation orders, it was apparent last week.

S. J. Helman, K. C., speaking for Mercury Oils, Ltd., which company started the court attack on the old act that was still pending on its automatic repeal with passage of the new legislation, declared that legal proceedings would probably be taken if orders subsequently issued by the board are not satisfactory to the Mercury company.

Helman said that despite the provision of the new act purporting to bar court proceedings with respect to the board's orders, action could be taken against the board if it were shown that the act itself was unconstitutional. Another move would be to sue the attorney general seeking a declaration with respect to the validity of the act, or Oil & Gas Products, Ltd., operating an absorption plant in Turner Valley, could sue for a company's failure to deliver gas to its plant and breach of contract.

Chairman Knode explained that much preliminary work must precede permanent orders with respect to the 104 gas wells in Turner Valley, and that the first order would be only temporary. He did not reveal whether the total allowable of 11,500 barrels of crude for the some 50 oil wells, set by the most recent order under the old act, would be changed.

Turner Valley may get better freight rate

Representatives of the Alberta Petroleum Association and officials of the Canadian National and Canadian Pacific railways will meet in Toronto December 5 to discuss a preferential freight rate on crude shipments from Alberta's Turner Valley field to east Canadian refinery centers.

The discussions, it is understood, will center around shipments of from six to seven thousand barrels daily which officials of Imperial Oil Company, Ltd., and British American Oil Company, Ltd., have announced could be handled without equipment changes in their Ontario plants.

Successful completion of the negotiations would increase the winter demand for Turner Valley crude by 50 percent, as the present prairie province market is capable of absorbing less than 12,000 barrels daily during the low-consuming season.

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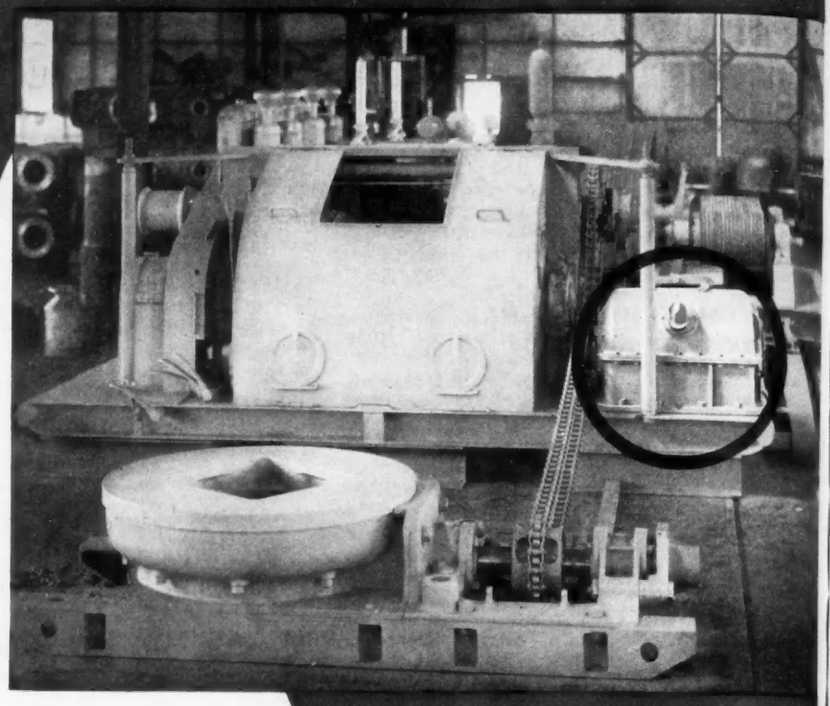

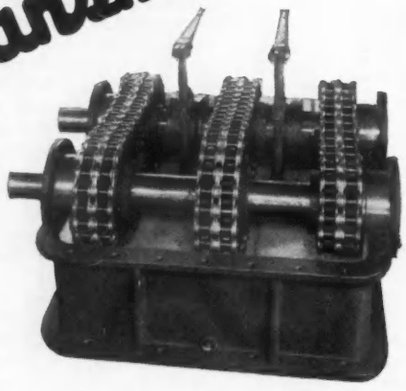

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MEN IN THE INDUSTRY'S NEWS

E. P. HAYES ELECTED CHAIRMAN OF THE HOUSTON CHAPTER OF AMERICAN PETROLEUM INSTITUTE

NEW VICE CHAIRMEN OF THE GROUP ARE PAUL HUBBARD AND J. U. TEAGUE

MEMBERS of the Houston Chapter of the American Petroleum Institute's Division of Production on November 28 elected E. P. Hayes, of The Texas Company, chairman for the coming year. He succeeds Donald B. Collins of Shell Petroleum Corporation.

Paul Hubbard, Gulf Oil Corporation, was selected as first vice chairman, succeeding Hayes. J. U. Teague, Humble Oil & Refining Company, became second vice chairman for the chapter. Warren L. Baker, THE OIL WEEKLY, was elected secretary-treasurer.

Six members were elected to the advisory board. These were: Paul Guarin, Shell Petroleum Corporation; Harry Edwards, drilling contractor; Tom Pew, General Crude Oil Company; D. E. Legan, Tide Water Associated Oil Company; Fred Waltermire, Continental Oil Company; and R. L. Carruthers, Sun Oil Company, Beaumont.

Six other advisory board members still have an unexpired term of one year, and will comprise the remainder of the directorate. These are: T. H. Andrews, Stanolind Oil & Gas Company; Arthur G. Levy, Fohs Petroleum Company; Chase E. Sutton, The Pure Oil Company; Gordon Richmond, Hughes Tool Company; Gage Lund, Standard Oil Company of Texas; and Rex Hamaker, Reed Roller Bit Company.

The chapter's new chairman took his degree of mechanical engineering at the Case School of Applied Science. His first connection with the oil business was with Henry L. Doherty interests at Bartlesville, Oklahoma. After serving in the World War, Hayes did not re-enter the oil business until 1925, when he joined the Bureau of Mines at Fort Worth. While with the Bureau of Mines he worked with helium gas and potash problems before joining the Oil & Gas Division, where he did considerable work in the East Texas and Oklahoma City fields. He became associated with the engineering department of The Texas Company in 1933, and now heads the department in Houston.

—Wayne Rector Photo

E. P. HAYES

E. P. HUBBARD

WALTER B. PYRON, vice president of Gulf Oil Corporation, Houston, was among 29 members of an advisory board appointed last week by Governor-Elect W. Lee O'Daniel of Texas. The members represent the various lines of endeavor and sections of the state, and will be asked for advice on providing good government in the state. Pyron was chosen to represent the natural resources industries.

ROBERT E. KING, Midland district geologist for Shell Petroleum Corporation, has been elected president of the West Texas Geological Society. Wm. Y. Penn, consulting geologist, and H. D. Pennel, geological scout for Amerada Petroleum Corporation, were selected vice president and secretary-treasurer, respectively.

WM. M. HARRISON, former head of Star Refining & Producing Company, returned to Fort Worth headquarters early last week after spending several months in Pickett County, Tenn., where his initial wildcat project developed a crater from shallow gas and wrecked the portable rotary rig. He plans to resume exploration of his lease block early next year.

JOE HOARD, with Hoard Exploration Company, Houston, is at present in Mattoon, Illinois supervising core drilling and shooting operations in the Illinois Basin.

RANDOLPH BEVERLY, assistant superintendent of the industrial relations department of Standard Oil Company of Venezuela at Caripito, is at present in Houston visiting with his family and friends after completing a two-year stay in South America.

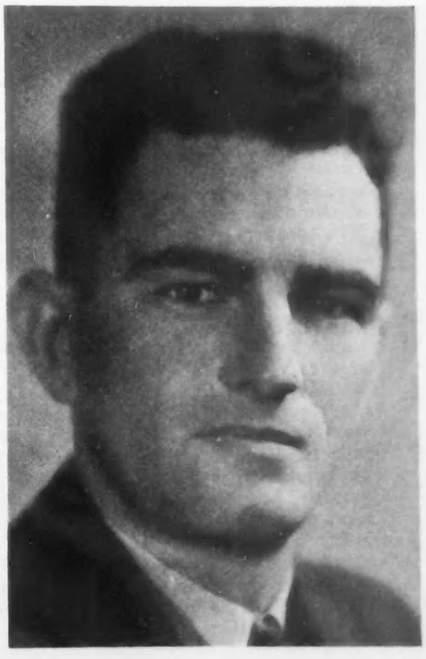
M. T. HALBOUTY, vice president of Merit Oil Corporation, Houston, was the principal speaker at a meeting of the Petroleum Club at A. and M. College, December 2. He discussed the types of present producing traps in the Gulf Coast and the future productive possibilities of deeper horizons and of stratigraphic traps.

F. P. SCHWAB, P. L. Kelier and W. C. Carlisle last week organized S. K. & C. Production Company as a Texas Corporation. Headquarters are being established at San Antonio.

DOUGLASS T. BOLLING, Owensboro oil operator, received rib fractures and bruises in an automobile-truck collision last week east of that Kentucky city.

H. L. J. HUNTER and **W. L. BURNS,** drilling superintendent and production superintendent respectively for Anglo Iranian Oil Company, are oil visitors in Houston.

ED PARR, drilling superintendent, Carribean Petroleum Company, Maracaibo, Venezuela, is temporarily in Houston during his vacation.



J. U. TEAGUE

J. W. REYNOLDS is superintendent of Galesrock Oil Company, formed last week to take over and develop a block of leases on 4,000 acres in the Sloan pool of Wayne County, Illinois.

C. D. NEFF, Texas operator, has shifted his operations to the Illinois Basin area and will drill his first test in Warrick County, Indiana. He is making his headquarters in Evansville.

C. D. BOREING and O. D. Boreing, operators of Magnolia, Arkansas, were in Evansville last week looking over South ern Indiana and Illinois and Northwestern Kentucky activity.

W. A. EGGERS, Oklahoma City operator, was in Evansville, Indiana, last week.

BAXTER BOYD, of Continental Oil Company, discussed the Jesse pool before members of the Shawnee (Oklahoma) Geological Society last week.

BEN F. McCARTHY, with Standard Oil Company's crude oil purchasing department in Casper, Wyoming, has been transferred to Tulsa.

DAN CAMERON, scout in western Kansas for Carter Oil Company and stationed at Great Bend, has been transferred to Chillicothe, Missouri.

JOE RUSSELL, assistant to the vice president, and John Tucker, superintendent of production of Gulf Oil Corporation, Houston, are making an inspection tour of the company's holdings in coastal Louisiana.

S. S. GOLDICH of the Department of Geology, Texas A. & M. College, Bryan, Texas, discussed the influence of weathering on the sources and materials of sedimentation at the weekly meeting of the Houston Geological Society, December 1.

BURTON McCOLLUM, Houston geologist, addressed a civic meeting at McAllen, Texas, last week. The meeting was held to discuss a new city oil drilling ordinance.

JOHN TODD, consulting geologist of Houston, recently returned from a business trip to South Lounsiana.

H. M. SNYDER, A. D. McRae and D. M. Hogarth, directors of Texas-Canadian Oil Corporation, left Toronto, Canada, last week for a tour of inspection of the company's properties in Texas, Arkansas, Louisiana and Illinois. They expect to be gone three weeks.

WILLIAM F. GATES, 71, who entered the oil industry when 17 years old as laborer for the West Virginia Transportation Company, at Volcano, West Virginia, and became president of the old Prairie Pipe Line Company in 1915, died in Independence, Kansas, November 24. Also a vice president of Pure Oil Pipe Line Company, he retired in 1932 on consolidation of the Prairie company with the Sinclair Consolidated Oil Corporation. Gates had worked as gauger and foreman for Buckeye Pipe Line Company at Lima, Ohio, and later for Indiana Pipe Line Company. In 1902, he joined Prairie Oil & Gas Company, of Neodesha and Independence, Kansas, as general superintendent and vice president.

HARRY C. ABELL, 69, vice president of Electric Bond & Share Company and a former president of the American Gas Association, died in a New Orleans hospital November 24 after an illness of one week. Surviving are his wife and one daughter.

A. S. Bailey heads Texas Company Old-Timers

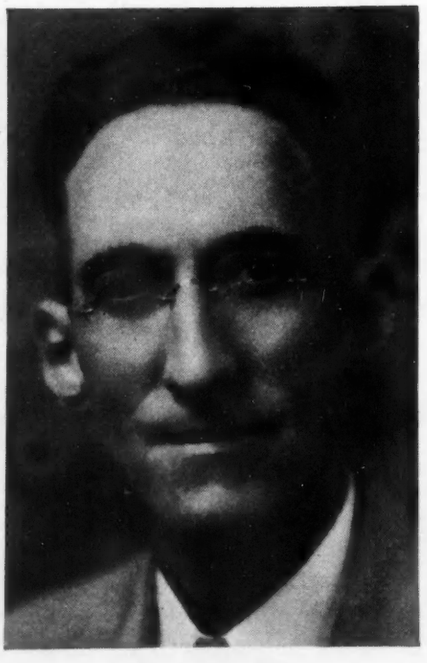
The Old-Timers Club of The Texas Company held its annual banquet in Houston, December 3. Those present included 144 members, officials of the company from all parts of the United States, and other guests.

New officers elected for the coming year of the Old-Timers Club are: A. S. Bailey, president; W. R. Ellwood, vice president; F. C. Jones, vice president; C. C. Shields, vice president; E. W. Foster, treasurer; R. J. Topliffe, secretary. All of the officers elected are Houston men and represent all the departments of The Texas Company. The retiring officers were: V. R. Currie, president; M. C. VanGundy, vice president; V. L. Porter, vice president; C. W. Redman, vice president; A. R. Megarity, treasurer, and P. A. Angenend, secretary.

V. R. Currie, president of the club, acted as toastmaster and presented those members who had been in service for The Texas Company from 30 to 36 years with solid gold watches. Forty-eight watches, with the name of the company and individual, and number of years of service engraved on the back, were awarded.

The Texas Company inaugurated during 1938, a plan for the recognition of employes' long and faithful service. At the banquet those employes having served the company more than 20 years were given lapel buttons, pins or watch charms, showing the company's trademark and years of service. All employes serving 25 years or more were presented with service buttons.

Not only is the Houston district of The Texas Company awarding these tokens of appreciation, but other Old-Timers in other areas are receiving the awards. Dinners will be held by clubs at New York, Port Arthur, Dallas, Tulsa, Chicago, Lawrenceville, Jacksonville, Denver and Los Angeles.



A. S. BAILEY

The Texas Company was organized in 1902 and has at present 1806 employes in the 20 to 24 year group, 539 in the 25 to 29 year group and 137 employes who have service records in excess of 30 years. The total years being in excess of 59,000, or an average of 23.8 years to the man. The average service for all employes of the company is approximately eight years.

With the retirement during the present year of John C. Colligan, of The Texas Pipe Line Company, T. J. Donoghue, vice president of The Texas Company, Houston, is the only active employe who has been with the organization since it was chartered in 1902.

Twenty-nine new members were initiated into the Old-Timers Club at the banquet last Saturday. V. R. Currie, president of the club, was presented with a large wooden watch and inside of this was a solid gold pocket watch.

Following is a list of the membership in the Texaco Old-Timers Club and the number of years they have served:

25 YEARS

A. Lefevre, W. F. Clancy, E. T. Jackson, J. E. Nolen, E. O. Pech, W. A. Wood, C. A. Wilson, E. J. Schifer, L. E. Parker, W. J. Sherman, C. C. Shields, F. Topliffe, R. B. Gill, T. B. Simpson, G. H. Hein, W. C. Samuels, F. A. Lenk, G. D. Klarr, W. J. Parr, E. Williams, R. L. Worden, E. H. Glover, L. Livingston, L. F. Peavy, J. T. Rynd, W. J. Cope, W. M. Haver, D. L. Shattuck, Mrs. B. Nelson.

26 YEARS

H. L. Wallace, J. W. Dieckert, J. W. Harmon, R. W. Taylor, T. L. Williamson, C. J. Johnson, E. R. Davis, P. J. Lauman, G. C. Tatom, J. Hemmit, W. G. Howland, I. R. Cleveland, W. H. Lester, R. O. Kirby, C. F. McCarthy, B. C. Walker, Chas. H. Blish.

27 YEARS

A. S. Bailey, C. O. Crouch, L. J. Stokes, C. W. Redman, J. B. James, G. T. Morse, Will Peebles, G. German, N. E. Seavey, C. A. Greaner, W. B. Thurmond, V. L. Porter, M. Westbrook, S. E. Monroe, P. H. Burger, W. P. White, C. W. Geiger, M. H. Langford.

28 YEARS

W. O. Crain, G. W. Foster, C. I. Voss, L. W. Kemp, George Ludwig, J. L. Willis, F. C. Jones, O. H. Matthews, H. G. Shook, J. S. Moss, J. F. White, P. A. Angenend, E. J. Schiller, J. F. Tietze, N. A. Russell, L. J. LaRue, John H. O'Brien.

29 YEARS

J. B. Duke, T. N. Dawson, E. E. Schreck, W. E. Leach, W. B. Williams, L. E. Barrows, B. L. Kowalski, M. A. Dyer, H. C. Selke, B. L. Hansen, R. L. Layton, T. J. Hester, B. B. Fitzpatrick, A. Davenport, A. J. Tuggle.

30 YEARS

G. L. Noble, H. J. Flake, M. C. VanGundy, W. R. Ellwood, R. F. Irvine, T. J. McMahon, J. A. Fryou, B. D. Dennis, J. E. Horrigan, R. C. Stewart, J. L. Shea, E. T. Junkins, O. M. Looper, M. Beauregard.

31 YEARS

E. H. Daniel, L. D. Fletcher, E. L. Cullum, J. H. Wallace, E. W. Franz, A. R. Megarity, B. E. Emerson, L. M. Fitzgerald, J. H. Borchers, Guy Johnson.

32 YEARS

E. M. Coleman, R. B. McLaughlin, C. W. Fowle, J. J. Burke, E. H. Catlin, J. J. Dean, H. L. Thompson, V. R. Currie.

33 YEARS

B. E. Hull, C. W. Bewley, R. J. Daniel, J. L. Adams, R. J. Topliffe.

34 YEARS

C. J. Giezendanner, J. B. Alleman.

35 YEARS

A. M. Donoghue, R. G. Dawson, P. C. Scullin, C. E. Pratt, W. L. Wright.

36 YEARS

Ira McFarland, Guy Carroll, J. C. Colligan, T. J. Donoghue.

THE WEEK'S NEWS SUMMARIZED

Allowables

Promise that the statistical position of the industry would not be disturbed during December, although demand naturally will be at a lower point, came when the Texas Railroad Commission continued the Saturday and Sunday shutdowns and kept in force a low level allowable. The new order provided that Texas fields would be shut in on 8 days during the month, the same number of production holidays required in November. The new basic allowable was fixed at 1,710,082 barrels, only 1000 barrels more than the November 1 order. Normally the basic allowable expands about 30,000 barrels per month.

California and Oklahoma continued their same allowables, but other states did not do as well. Louisiana granted an increase of 22,080 barrels. After failing to agree on a December allowable, a Kansas hearing was adjourned until December 17. Meanwhile, the November allowable will continue in force.

Prices

With the exception of gasoline tank car quotations, prices in the industry remained mostly unchanged. The minimum price of the lower octane grade of gasoline, however, sagged another ⅛ cent a gallon the past week in both the Oklahoma-Kansas refining centers and in the Chicago territory, as demand was curtailed by cold weather. Natural gasoline, on the other hand, was in good demand, and prices advanced ⅛ cent a gallon.

Situation

Although the markets for crude oil and gasoline displayed some further signs of weakness, there were no material changes in basic conditions.

Reassuring was the allowable program for December, which indicates crude production will be satisfactorily in line with demand.

On the other hand, refiners increased their throughput of crude. This expansion became discouraging last week when gasoline stocks increased approximately 1,000,000 barrels, and became greater than the volume on hand a year ago. Runs to stills were up 65,000 barrels in the week.

However, fuel oil stocks continued to show some reduction. They declined 300,000 barrels, but were still 26.3 percent above a year ago.

Crude stocks continued to be drawn upon.

Relief from pipe line proration experienced by K-M-A's deep production since August 1 apparently will not be available for some months, although it had been anticipated the situation would be cleared.

Nearly 200,000 barrels of additional East Texas confiscated oil were sold at sheriff sales at bargain counter prices last week. Prices of 24 and 25 cents a barrel were sufficient to bid in the oil, which had been confiscated by the state and "blessed" for auction sales. This raised the volume sold in such fashion in East Texas since mid-September to 1,420,000 barrels, which is having a very discouraging influence.

California, which escaped the recent crude price cuts that touched all other parts of the United States, was declared last week to be confronted with an emergency situation. Standard Oil Company of California stated practically all storage in the state was filled by approximately 33 million barrels of surplus produced oil during the current year. The company asserted a continuation of the practice of producing more oil than is consumed would create an uneconomic situation that would result in a breakdown of prices.

Investigations

The federal administration's investigation of monopoly got under way last week, with indication that the oil situation was to be given early consideration, probably as a part of the patent study, the first subject on the program. The oil part probably will not be reached until after the Christmas holidays. Small operators are expected to testify that operations of large companies are causing them to suffer.

Pennsylvania's oil investigating commission was recreated by the state legislature last week, but its personnel was changed drastically. The original commission was declared unconstitutional. The new group is an all-legislative body, removing three lay-members. A report of its findings and its recommendations are expected shortly.

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Allowable Picture

Texas continues shutdowns, holds basic allowable to low level . . . Louisiana hikes its quota 22,080 barrels . . . Kansas fails to agree on an allowable

Texas allowable kept at strict limit

Continuation of the Saturday and Sunday shutdowns of Texas production throughout December, with the exception of Saturday, December 17, was provided in an order of the Railroad Commission issued last week. Thus fields will be closed 8 days during December, the same number as in November. Wells are to be shut in on December 3, 4, 10, 11, 18, 24, 25 and 31.

In addition to providing for the continuation of the production holidays the new order also maintained a strict basic allowable. The new basic allowable was fixed at 1,710,082 barrels daily, only 1000 barrels more than in the November 1 order. Normally the basic allowable expands about 30,000 barrels per month due to completion of new wells. This result was achieved by cutting the allowable in the larger flush fields such as Yates, where a reduction of 2000 barrels to 26,622 barrels was ordered.

The commission estimates that actual production will average approximately 1,294,577 barrels daily, which is 49,323 barrels less than the consumer demand for Texas oil as estimated by the United States Bureau of Mines. The 8-day shutdown cuts the average daily allowable 415,505 barrels.

Smith Doesn't Sign

Both the Sunday shutdown order and the proration order were signed by Commissioners Thompson and Terrell after Commissioner Lon A. Smith refused to sign it. This led to a great deal of speculation concerning the prospects for continuation of the shutdown in 1939 after the general order has expired. Judge Terrell will, of course, be in office until January 1 and will have an opportunity to sign the January proration order. The February order, however, will be the first that will require the signatures of either Commissioner Elect Gerry Sadler or Commissioner Lon A. Smith.

Kansas allowable hearing adjourns

Second hearing on allowable for Kansas in December ended December 1 with no order written and the Kansas Corporation scheduled to meet December 17 to continue the hearing. Meanwhile, the allowable of November, 164,300 barrels daily, will continue.

The question at issue in Kansas concerns special allowables for fields which have markets in excess of percentage allowables. By granting these the state could sell more oil than under strict adherence to uniform percentages.

The commission did discard the 15 barrel minimum per well of prorated fields. While this was in effect each prorated well got its minimum and additional output was based on percentage of potential.

Hearing to determine allowable for Kansas in December was resumed in Wichita November 29 after a hearing held the week previous. Nominations by purchasers indicated a demand for only 150,000 barrels daily from Kansas fields for December. An estimate by E. G. Dahlgren, conservation officer, was 153,900 barrels daily. Estimate of demand for Kansas crude in December from the United States Bureau of Mines was 159,000 barrels.

The hearing was complicated by a controversy between concerns which favored special allowables and those who held out for holding to strict percentages regardless of demand for certain fields. Continental Oil Company reported that it could increase purchases in Kansas if special allowables could be granted. Otherwise its position was that it would prefer to increase purchases from Oklahoma fields. Representatives of Skelly Oil Company as well as members of the Kansas Independent Oil Association opposed the special allowable method of determining field output.

During the hearing Continental Oil Company announced that it would withdraw as a purchaser of oil from leases of the Mission Oil Corporation in the Habiger field.

During November, Kansas fields were operated on the allowable held over from November. The controversy over special allowables at the October hearing prevented revision of allowables for November. The situation in Kansas is further complicated by the coming change in administration in the Corporation Commission, which will have two new members in January.

Louisiana increases December allowable

Louisiana's daily allowable for December was set at 253,580 barrels by Conservation Commissioner William G. Rankin of which 63,900 barrels was allotted to North Louisiana fields. The December allowable represents an increase of 22,080 barrels over November. December allowables for North Louisiana districts follow: Lisbon, 7500 barrels, up 1500 barrels; Rodessa, 31,000 barrels, unchanged; Cotton Valley (lower Marine), 1500 barrels (first allowable); Cotton Valley (Holloway), 5000 barrels, increase 250 barrels; Shreveport, 900 barrels (first allowable); and others, 18,000 barrels. North Louisiana had an allowable of 60,350 barrels in November.

The sixty fields in South Louisiana were given a December allowable of 183,680 barrels, as compared to 175,150 barrels in November.

Emergency declared to exist in California

Standard Oil Company of California believes an emergency exists in this state because available storage is practically exhausted and that approximately 33,000,000 barrels of surplus petroleum will have gone into storage by the end of the current year.

Last week, Standard in a statement said the necessity of bringing production into a close balance with demand was urgent and that over-production of crude oil in California had created a uneconomic situation that should be called to the attention of everyone engaged in the oil industry.

"California is producing more oil than can be sold. During the first 10 months of 1938, 28,000,000 barrels of crude oil and products were placed in storage. The total addition for the whole year is 33,000,000 barrels, or an average rate of 90,000 barrels per day. Although the Bureau of Mines estimates for December a demand in California of 589,700 barrels per day, the state is producing at the rate of about 666,000 barrels daily."

Standard Oil further stated that various estimates indicate a demand during 1939 of approximately 600,000 barrels per day, although this means ending the year 1939 with stocks at least as great as at the first of the year. At the present rate of production. Standard expects 24,000,000 barrels to go into storage during 1939. If this holds true, the statement continued, some purchasers of crude oil foresee that their storage facilities will be full within a few

Texas Basic Allowable Comparisons

These figures do not consider the Saturday and Sunday shutdown of wells.

	DISTRICT	10-1-38	11-1-38	11-18-38	12-1-38
1	Southwest Texas	38,115	37,878	38,855	39,099
2	Southwest Texas	65,551	67,902	69,578	69,984
3	Gulf Coast	264,810	275,310	282,173	269,401
4	Southwest Texas	197,941	199,384	204,694	204,686
5	East Central Texas	30,763	30,997	31,048	29,021
6	East Central Texas	82,230	82,201	83,524	79,946
6	East Texas Field	517,816	519,985	519,401	519,718
7-B	West Central Texas	50,926	51,589	52,309	52,574
7-C	West Central Texas	29,765	30,111	30,315	29,374
8	West Texas	236,484	244,866	249,978	240,864
9	North Texas	89,926	85,149	90,608	90,608
10	Panhandle	83,292	83,900	84,344	84,807
	Total	1,687,619	1,709,272	1,736,827	1,710,082

months, while several buyers are already without storage facilities for certain products. Standard predicted a breakdown of the present stabilized market unless the situation is given immediate action.

610,000-barrel allowable

Although Japanese purchasers are reported to be on the increase from the Pacific Coast, the Central Committee of California Oil Producers last week voted to continue the current crude allowable of 610,000 barrels daily with a tolerance of 5000 barrels daily for the month of December.

Lawrence Vander Leck, chairman, in a brief talk to the Central Committee reviewed the production situation for a number of fields, such as Wilmington, Dominguez, Rio Bravo and Rosecrans where overages had been piling up, and said that further oil conservation will be necessary for the remainder of the winter months. There was no mention of the possibility of raising the quota, but rather a tendency on the part of the committee to continue indefinitely the present program as recommended by the Allocation Committee headed by L. L. Aubert, chairman.

Oklahoma allowable for December is unchanged

Allowable daily oil output for Oklahoma will remain at 428,000 barrels for December. This recommendation of W. J. Armstrong, chief conservation officer, became an order of the Oklahoma Corporation Commission after a hearing November 29.

Oil at the Capitols

Administration's monopoly investigation gets started with indications consideration to be given oil early

Oil expected to be early monopoly study

The administration's investigation of monopoly got under way December 1, with indications that the oil situation would be explored in the near future, probably as part of the study of patents, the first subject scheduled for consideration after general statements of federal officials are disposed of.

Cost of nine years of depression was placed by Dr. Isador Lubin, commission of labor statistics, as equal to 14 months' wages of every non-agricultural worker in the country.

Dr. Lubin was the first of a series of government witnesses, discussing national income, unemployment and payrolls. He was followed by other officials discussing similar subjects, and then by Leon Henderson, secretary of the joint congressional executive committee, who explained points at which the investigation should aim.

The committee will get into the question of patents with a survey of patent pooling, as exemplified by the automobile industry, and then of patent monopoly, as practiced in the glass industry. While the committee has not said where it will go from there, observers believe that when hearings are resumed after the Christmas holidays, the oil patent situation may be gone into and that, in turn, may lead to a survey of the oil industry in its entirety.

If the industry is taken up for study, the committee will have at its disposal the material available from investigations made in the past by the Department of Justice, Federal Trade Commission and other agencies, and may also have suggested to it the advisability of making a study of the divorce of production from marketing.

It is said, also, that while, because the proceedings are still pending, the investigation may not touch upon the Madison case, Department of Justice officials, still smarting over the dismissal of indictments, will try to submit a justification of their position.

Most of what fireworks there may be when oil is taken up will probably be furnished by representatives of small concerns suffering from the operations of their large competitors, whose testimony undoubtedly will bring up the divorce question.

Pennsylvania investigating committee recreated

Pennsylvania's oil industry investigating commission, following a bumpy career through the legislature and through the courts, was recreated by the state legislature last week with its personnel drastically changed. The new body will wind up the affairs of the original commission declared unconstitutional and shortly make its report, which may include recommendations to regulate the industry, or parts of it, as a public utility.

The bill recreating the commission and signed by Governor George H. Earle during the closing hours of a special legislative session last week made it an all-legislative body, removing three lay-members. Those removed were Judge Ralph H. Smith, of Pittsburgh, chairman; John E. McComb, of Venango County, representing producers, and William H. Godfrey, of Philadelphia, representing distributors.

Speaker Roy Furman of the lower house named Michael C. Chervenak, of Cambria, a member of the original commission, as chairman, and appointed John J. Finnerty, of Philadelphia, and Thomas Weidemann, of Delaware, as new members. Senator E. J. Thompson, of Centre, member of the old commission who introduced a bill changing the investigating body to an all-legislative commission, was re-appointed, and Bernard B. McGinnis, of Allegheny, named a new member representing the upper house of the legislature.

The new commission was given a $20,000 appropriation, approximately half of which will be used to pay outstanding bills of the old commission not covered by the $31,000 actually dispersed by that group. The old commission became inactive last March by an order of the Dauphin County court at Harrisburg, and it was later found by the supreme court to have been illegally created by a resolution rather than a bill.

Following its invalidation, the legislature re-created the commission and reappointed the original members. The measure was signed by the governor, but the appointments were not confirmed by the senate before Senator Thompson introduced his measure to change the complexion of the body by dismissing lay-members.

Texas commission shake-up indicated

Evidence of the extent of the Texas Railroad Commission shake-up to result from the election of G. A. (Jerry) Sadler became apparent last week as three appointments were made in the transportation division and another official of that department resigned.

Sadler and Commissioner Lon A. Smith announced the appointments, and Commissioner Thompson "acquiesced to the will of the majority." Thompson likewise announced that on January 1, he would nominate Commissioner Smith for chairman of the commission, and thus maintain the policy which has been in effect several years—that is, to name as chairman the commissioner whose term will expire next.

Meanwhile, Smith declined to fire some 70 railroad commission employes which he said Commissioner Thompson had submitted for his consideration. He declared that if they should have been fired, it should have been done "months ago." Included in this group were some 39 employes of the Oil and Gas Division. Thompson, who favored the change, estimated that $100,000 a year could be saved by this method without impairing departmental efficiency.

Coal interests seek preferential over oil

Typical of moves being undertaken by supporters of the coal interests to gain preferential legislation is the resolution passed by the Trade and Labor Council of Wyoming County, West Virginia, urging President Roosevelt to recommend to congress passage of a bill increasing the tariff on imported petroleum and to place a tax on gas, oil and electricity used in the United States.

The union group calls attention to the large amount of bituminous coal that is being displaced by those fuels and forms of energy and stresses the importance of the coal industry to the economic welfare of the country.

Oil in the Courts

Texas shutdown suit set for December 7 . . . Appeal Court reaffirms tanker leakage subject to pollution laws . . . Charge artificial gas firms with restraint

Texas shutdown attack may have early trial

The suit set to test the validity of the Saturday-Sunday shutdown order will go to trial December 7, so far as defendant Ray Starnes is concerned. Judge Starnes was in Austin last week conferring with Commissioner Lon A. Smith and Commissioner Elect Gerry Sadler.

Starnes said that whether or not the suit was won, he would have an opportunity of putting before the public a true picture of the oil situation. He planned to file an amended petition bringing his suit up to date and attacking the December shutdown order which was issued last week.

Pollution decision upheld in tanker leakage suit

Following a rehearing on arguments, the United States Circuit Court of Appeals for the Fifth District at New Orleans reaffirmed a previous decision holding the master of a tanker responsible for oil pollution caused by rivet leakage. The case involved a $500 fine levied against Capt. S. B. Hegglund, master of Sun Oil Company's tanker Bidwell, who was found guilty of permitting the discharge of oil into the Calcasieu River, near Lake Charles, Louisiana, April 16, 1937. Magnolia Petroleum Corporation was an intervener when the case was appealed.

The court record shows that Capt. Hegglund was charged with violation of the Oil Pollution Act of 1924, Section 431, Title 33 U. S. C. A. There have been a number of cases involving pollution passed on by the United States Supreme Court, but the Hegglund case marks the first time that the section under which the charge was brought has been subjected to appellate court for review.

The appeals court, in its decision said: "We think that a correct construction of the statute is that leaks from the rivets of the kind testified to in this case are not unavoidable accidents. We think this is so whether the statute be construed as appellant would construe it, as excusing all discharges not avoidable by due care, or as prohibiting all discharges except those occurring under conditions of 'peril to life or property, unavoidable accident, collision or stranding'.

"In our view, the statute, except under the conditions set out, absolutely forbids the prohibited discharge in coastal waters, and due care is not a defense. It charges those who permit the discharge of oil in navigable channels, other than as permitted in the act, with doing so at their peril, and with absolute accountability. Such a construction of the statute puts no undue burden on masters and shipowners."

Gas company seek trust violation damages

Suit for damages of $450,000 under Section 7 of the Sherman anti-trust act was filed in federal court at Indianapolis, Indiana, last week by Kentucky Natural Gas Corporation, Owensboro, Kentucky, against Indiana Gas & Chemical Corporation and Universal Gas Company, both of Terre Haute, Indiana, and officers of the two companies.

Kentucky Natural Gas Corporation charges natural gas has been barred by the defendants from Terre Haute and 11 other Indiana communities through "an unlawful conspiracy to restrain trade." Triple damages for injuries resulting from the alleged illegal restraint of trade are sought.

Negotiations between the plaintiff and defendant companies, according to the petition, committed Alfred M. Ogle, president of both defendant companies and one of the individual defendants, to negotiate with distributing companies in the area involved for the introduction of straight natural gas in their territories. A change over to straight natural gas, in the plaintiff's judgment, could have been effected within six months, or not later than March 1, 1936, but the defendants allegedly failed to conduct these negotiations in good faith and adopted obstructive tactics.

Besides Ogle, other individual defendants are Omer A. Wilson, of Terre Haute, secretary-treasurer of the two companies named in the complaint; Harvey L. Comin, of Terre Haute, a director of the Universal company, and Philip L. Gill, T. Raymond Pierce and Philip A. Russell, all of New York; Bertrand J. Perry, of Massachusetts, and Albert E. Pierce, of Virginia, all directors of the Indiana Gas & Chemical Corporation.

In another action Indiana Gas & Chemical Corporation filed a petition in U. S. District Court at Terre Haute seeking a permanent injunction to prevent the Kentucky Natural Gas Corporation from cancelling its contract to provide natural gas to enrich the artificial gas supplied the same 12 cities by the Indiana company.

Texas seeks title to Galveston County acreage

The State of Texas has filed suit in the 53rd District Court at Austin seeking title to 15 acres of land in Galveston County. Fred B. Ware, Humble Oil & Refining Company, Stanolind Oil & Gas Company and Standard Oil Company of Kansas were named along with 30 other defendants.

It is alleged that there is a vacancy located on the Galveston-Brazoria County line between the B. T. Masterson, Wm. Henry and Mary Sloan Surveys. William Brandau has obtained a lease on the tract from Land Commissioner W. H. McDonald.

The State alleges that oil valued at $100,000 has been withdrawn from the tract by the defendant and damages to that extent are sought.

Pipe Line News

Twenty-seven-mile 8-inch gas line to Waynesburg, Pennsylvania, is longest contract awarded past week

Twenty-seven mile Pennsylvania gas line

Contracts for construction of a 27-mile 8-inch solid welded natural gas line from the new development on Chestnut Ridge in Fayette County, Pennsylvania, to a point 1 mile east of Waynesburg, Greene County, Pennsylvania, have been let by Carnegie Natural Gas Company to Rich & Company, of Bradford, Pennsylvania. The line will connect with the company's 12-inch line near Waynesburg.

The new line, which Samuel W. Meals, president of the Carnegie company, declares is necessary to augment the supply of natural gas from old wells which have declined, will follow a route from just east of Waynesburg across the Monongahela River below the bridge at Masontown east, just north of the glass house at Fairchance and will end about 3030 feet south of a test now being drilled by the New Penn Development Company on the Indian Creek Coal & Coke Company lease.

High rock pressure of production on Chestnut ridge will make additional stations unnecessary, Meals said.

Humble removing 60-mile line in West Texas

The removal of 60.7 miles of 8-inch line pipe, linking the Howard-Glasscock County producing district with Kemper terminal, has been authorized by Humble Pipe Line Company. The company surrendered well connections, averaging 2600 barrels daily, and a portion of its gathering system in the above district to Cosden Petroleum Corporation, which operates a refinery at Big Spring, effective November 1.

The district has had a growth in the local demand for crude in recent years, due to steady operation of the Big Spring plant, and Col-Tex Refining Company's refinery at Colorado. Magnolia Pipe Line Company and Shell Pipe Line Corporation also serve the district.

Humble Pipe Line Company was relieved of 2000 barrels daily runs in Winkler County effective November 1

through arrangements made with Magnolia Pipe Line Company. It is reported that another substantial volume of oil is to be diverted from the company's system at the end of the year. These changes are credited with being more than adequate to wipe out the surplus oil runs above market demand that Humble Pipe Line Company reported recently.

Magnolia buys 24-mile line in Illinois

Magnolia Pipe Line Company of Illinois, recently created subsidiary of the Magnolia Petroleum Company, has purchased Sinclair Refining Company's 24-mile 6-inch crude line, extending from Wood River to East St. Louis, Illinois. The line will be used in affecting the delivery of crude produced and gathered by the Magnolia Petroleum Company's recently established gathering system in the Salem-Lake Centralia district, Illinois, to Lubrite Refining Corporation's refinery at East St. Louis. The oil will be routed through the Illinois Pipe Line Company's multiple system from Sandoval to Wood River on a common carrier basis.

Centralia-Salem line placed in operation

Manly Oil Corporation last week placed into operation its new 13-mile pipe line from the Lake Centralia-Salem field of Marion County, Illinois, to Centralia. It will serve the Big Basin Refinery and transport oil to loading racks near the refinery.

Capacity of the line is 8000 barrels daily, half of which is at present contracted for. It will help to relieve congestion in the field caused when the Sohio Corporation, serving independents, limited purchases to 50 barrels per well per day.

The line now extends from the Young School lease in Section 20-2n-2e, where the first connection was made, south to the Green Street road and west into Centralia. It will be extended east to the Young Church lease, and when all connections and gathering lines have been completed it will extend approximately 20 miles.

Building short crude line in Arkansas

Phillips Petroleum Company and Standish Pipe Line Company have right-of-way purchased and titles perfected thereon for a 14-mile 6-inch welded line from the Schuler field, Union County, to Atlas Pipe Line Company's station at Cornie, Union County, Arkansas.

Canadian gas line

Plans for construction of a pipe line from the Cardston gas field to the town of Raymond, in southern Alberta, are being made, with preliminary surveys now underway. Franco Oils, Ltd., has a franchise to supply the town with gas, and has other markets in Southern Alberta lined up. The company has a partially completed well in the Cardston area.

Market Situation

Gasoline prices drop further as refinery runs jump and refined stocks increase . . . Additional sales of confiscated East Texas oil goes at bargain price

Difficulties remain in generally firm markets

Although the markets for crude oil and gasoline have displayed some further signs of weakness, there has not been any material change in the basic conditions and the outlook of the industry; and the general market picture consequently remains fairly promising.

Reassuring is the allowable program for December, which indicates that crude oil production will continue under satisfactory control at least to the end of the year. The six leading producing states have combined allowables lower than the available market demand, and the national production consequently will be well in line with actual requirements.

Refinery Runs Increased

On the other hand, the refineries have been gradually increasing their throughput of crude for several weeks, and it is threatened that crude runs may be raised too high and result in the accumulation of excessive stocks of gasoline.

So far the gasoline inventories are not burdensome, but they were increased a million barrels in the latest week for which figures are available.

Leaders of the industry have cautioned that unless refinery operations are held down to moderate levels, gasoline inventories may grow too large by the end of next March, and prevent the fulfillment of the present promise of a profitable 1939.

That there is still much room for improvement in the gasoline market was demonstrated in the past week, when colder weather brought curtailment of demand, the substantial addition to storage, and some further weakening of tank car prices of the lower octane gasolines.

Kerosene and Fuel

The markets for kerosene and fuel oils, meanwhile, have continued steady, and prices have been unchanged.

Light fuel oils were reported last week to be increasingly difficult to obtain from suppliers in the Mid-Continent, and few open market sales were made, deliveries having been almost wholly against contract. The colder weather has brought materially larger consumption of the heating oils, and there were numerous instructions for shipments against contracts.

The natural gasoline market has continued firm, and in some instances quotations have been further advanced ⅛-cent a gallon.

Crude Market

The crude oil markets remain fairly firm in most districts, although there is still some selling of crude below the regular posted prices, as before the recent general reductions of postings.

The areas where the crude markets are relatively weak are largely the same now as before the general crude cut, among them being some fields of Oklahoma and Kansas and the East Texas field.

Colon's production off in October

Production of The Colon Development Company, Limited, for October was 491,461 barrels. This compares with 495,983 barrels for the month of September.

Gasoline prices sag; crude weak in spots

Prices in the oil industry have continued mostly unchanged, with exception of gasoline tank car quotations. The minimum prices of the lower octane grades of gasoline have sagged another ⅛-cent a gallon within the past week in both the Oklahoma-Kansas refining districts and in the Chicago territory, as demand has been curtailed by colder weather, while some gasoline has been going into storage.

Natural gasoline, however, has been in good demand, and prices have been adavnced ⅛-cent a gallon in some instances.

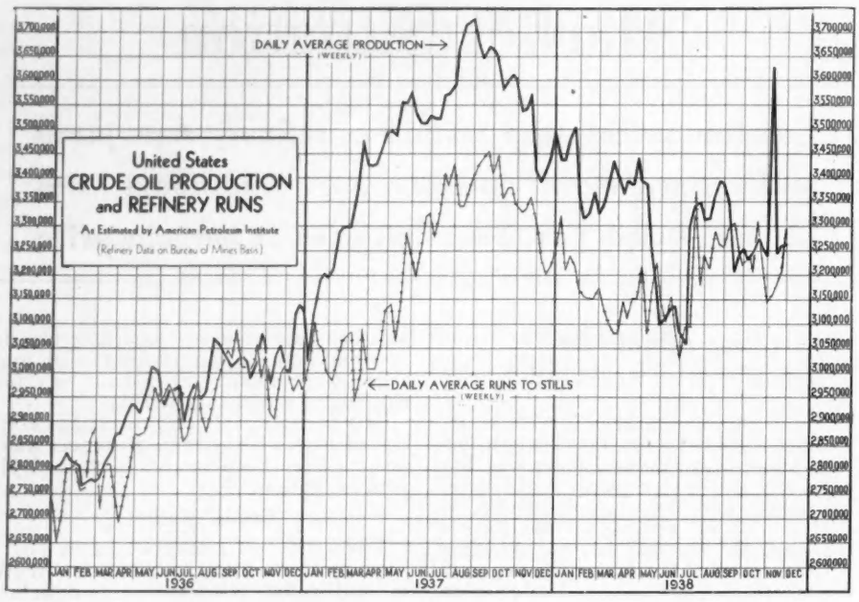
Kerosene tank car prices have remained unchanged, and fuel oil prices also have been steady, as demand has increased with the advent of the colder weather.

The crude oil market still has some weak spots, although it is fairly firm in general. Oklahoma producers in some areas still are without adequate market, and crude is being sold below posted prices in some quantities also in other districts of the Mid-Continent.

Continued weakness of the East Texas crude market was evidenced last week in the announcement by Clay Refining Company, independent refining company with a plant at Arp, Texas, that retroactive to November 15 it was posting a price of only 75 cents a barrel for East Texas crude, or 35 cents less than the major company posting. The company purchases, however, only a small amount of East Texas oil.

Natural Gasoline

Natural gasoline, grade 26-70, was priced generally in the Mid-Continent markets f.o.b. refineries at 3¼ to 3⅜ cents a gallon, and sales were reported



295,000 barrels daily. At that rate, the runs were only about 1 percent lower than a year before, whereas they had been previously materially under last year's levels.

Gasoline Stocks

Stocks of finished and unfinished gasoline in the United States were increased about a million barrels in the week ended November 26, having risen to 68,628,000 barrels. They were then 1/10 of 1 percent larger than at the corresponding time last year, when the supply on hand totaled 68,544,000 barrels. However, the outlook for gasoline demand is better now than it was a year ago.

Fuel oil stocks were reduced about 300,000 barrels in the week of November 26, having come down to 153,634,000 barrels. At that level they were 26.3 percent larger than a year previously. The gain over a year ago is fairly well justified, however, by the fact that heating oil consumption is considerably larger, in consequence of added installations of oil burners.

at 3 to 3⅛ cents f.o.b. Breckenridge, Texas.

Gasoline Prices

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below, 3⅝ to 4½ cents a gallon; 63 to 66 octane, 4 to 4⅝ cents; 67 to 69 octane, 4⅛ to 4¾ cents; 70 to 72 octane, 4½ to 5¼ cents.

Corresponding prices in the Chicago market were 3⅜ to 4 cents, 3⅝ to 4⅝ cents, 3⅞ to 4¾ cents and 4 to 4⅞ cents.

In East Texas the most common gasoline, 60-62, 400 end point, was priced generally at 4 cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 3⅞ to 4¼ cents a gallon for the 41-43 water white grade, and from 4¼ to 4⅝ cents for the 42-44 water white grade; and corresponding prices in the Chicago market were 3¾ to 4¼ cents and 3¾ to 4⅜ cents.

Fuel Oil Quotations

Fuel oil prices were not materially changed in the past week. In the Chicago market range oil was priced from 3¾ to 4 cents a gallon. The No. 1 white oil was priced from 3⅝ to 3⅞ cents, and No. 1 straw from 3⅝ to 3¾ cents. No. 2 straw was 3½ to 3⅝ cents. No. 3 oil was 3¼ to 3⅜ cents. No. 5 oils were 60 to 70 cents a barrel. The No. 6 oil was quoted at 35 to 45 cents.

Crude runs increase mars oil statistics

A further and somewhat disturbing expansion of refinery operations featured the latest weekly statistics of the petroleum industry.

Other factors in the statistical situation were, however, generally favorable.

Crude oil production has remained comparatively low, and crude oil stocks are exceptionally light.

Gasoline inventories have begun to increase, after having been held about stationary in recent weeks, in a season of normally rising stocks.

Fuel oil storage has been reduced some, as colder weather has resulted in increased demand for heating oils.

Production and Runs

United States crude oil production in the week ended November 26 averaged 3,260,900 barrels daily, according to the American Petroleum Institute, having risen about 5,000 barrels from the previous week's level. It was then 4.8 percent larger than in the corresponding week last year.

Crude runs to stills rose another 65,000 barrels in the week ended November 26, when they averaged 3,-

Confiscated oil sold by Texas at bargain

Kilgore, Texas.—Bargain counter prices prevailed at the 3 confiscated crude sales, involving oil produced illegally in the East Texas field, staged early last week in Gregg and Rusk counties. E. D. Skipper paid the state 25 cents per barrel for 94,429 barrels of oil stored in Gregg County. This sale covered 54,435 barrels of 37.3-gravity oil and 39,994 barrels of 34.9-gravity crude. A later auction staged by the sheriff of Gregg County enabled J. R.

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
September 25, 1937	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 29	3,357,650	3,170,000	304,286,000	84,844,000	118,793,000
February 26	3,322,800	3,170,000	305,167,000	90,719,000	120,958,000
March 19	3,322,550	3,080,000	306,380,000	*93,192,000	122,067,000
March 26	3,405,600	3,080,000	307,557,000	92,858,000	122,979,000
April 30	3,396,150	3,215,000	307,147,000	91,339,000	128,270,000
May 28	3,098,650	3,150,000	301,583,000	87,946,000	134,315,000
June 25	3,083,900	3,025,000	293,463,000	82,412,000	137,801,000
July 30	3,316,400	3,240,000	288,514,000	76,864,000	144,294,000
August 27	3,388,500	3,255,000	285,029,000	71,754,000	146,926,000
September 24	3,251,150	3,220,000	280,278,000	68,605,000	150,468,000
October 1	3,231,800	3,235,000	280,852,000	68,602,000	151,759,000
October 29	3,237,500	3,145,000	275,824,000	67,590,000	153,719,000
November 5	3,628,550	3,160,000	275,217,000	68,236,000	154,576,000
November 12	3,243,250	3,180,000	273,394,000	67,551,000	*154,666,000
November 19	3,255,800	3,230,000	.....	67,624,000	153,971,000
November 26, 1938	3,260,900	3,295,000	.....	68,628,000	153,634,000
November 27, 1937	3,425,800	3,325,000	†304,324,000	68,544,000	121,616,000
Change in past year	—4.8%	—0.9%	.....	+0.1%	+26.3%

* All time peak. † Stocks, November 20, 1937.

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TEXAS ELECTRIC STEEL CASTING CO.
GOOD CASTINGS TESCO HOUSTON, TEXAS
NUMBER FOUR OF A SERIES

CRUDE OIL PRICE SCHEDULES

(Posted October 11-13, 1938)

MID-CONTINENT GRAVITY SCALE PRICES

(Some fields of Mid-Continent have flat price postings, and are shown separately).

GRAVITY	[7]Okla.-Kans.	North La.-Ark.	North & W. Central Tex.	East Central Tex.	Gray Co. Tex.	Carson Hutchinson Co. Tex.	[1]Tomball Tex. Type	West Tex.-N. Mex.	[3]Gulf Coast (Tex.-La.)	[3]Some La. Gulf Areas	Jennings, La.	[4]Anahuac, Tex. Type	[5]Refugio, Tex. Type	[6]Mirando, Tex. Type	[8]Salt Creek, Wyo.
17–17.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18–18.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19–19.9	.....	.....	.....	.....	.....	.....	.....	*$0.53	*$0.79	*$0.79	.....	*$0.74	*$0.79	*$0.74	.....
20–20.9	$0.60	.....	.....	.....	.....	.....	.....	.55	.82	.82	.....	.77	.82	.77	.....
21–21.9	.63	.....	.....	.....	.....	.....	.....	.57	.85	.85	.....	80	.85	.80	.....
22–22.9	.66	.....	.....	.....	.....	.....	*$0.95	.59	.88	.88	.....	.83	.88	.83	.....
23–23.9	.69	.....	.....	*$0.78	.....	.....	.97	.61	.91	.91	.....	.86	.91	.86	.....
24–24.9	.72	*$0.73	*$0.71	.80	.....	.....	.99	.63	.94	.94	.....	.89	.94	.89	.....
25–25.9	.75	.75	.73	.82	.....	.....	1.01	.65	.97	.97	.....	.92	.97	.92	.....
26–26.9	.78	.77	.75	.84	.....	.....	1.03	.67	1.00	1.00	.....	.95	1.00	.95	.....
27–27.9	.81	.79	.77	.86	.....	.....	1.05	.69	1.02	1.02	.....	.97	1.02	.97	.....
28–28.9	.84	.81	.79	.88	*$0.72	*$0.67	1.07	.71	1.04	1.04	.....	.99	1.04	.99	*$0.86
29–29.9	.87	.83	.81	.90	.74	.69	1.09	.73	1.06	1.06	.....	1.01	1.06	1.01	.88
30–30.9	.90	.85	.83	.92	.76	.71	1.11	.75	1.08	1.08	.....	1.03	1.08	1.03	.90
31–31.9	.92	.87	.85	.94	.78	.73	1.13	.77	1.10	1.10	*$0.87	1.05	1.10	1.05	.92
32–32.9	.94	.89	.87	.96	.80	.75	1.15	.79	1.12	1.12	.89	1.07	1.12	1.07	.94
33–33.9	.96	.91	.89	.98	.82	.77	1.17	.81	1.14	1.14	.91	1.09	1.14	1.09	.96
34–34.9	.98	.93	.91	1.00	.84	.79	1.19	.83	1.16	†1.16	.93	1.11	1.16	1.11	.98
35–35.9	1.00	.95	.93	1.02	.86	.81	1.21	.85	1.18	.....	.95	1.13	1.18	1.13	1.00
36–36.9	1.02	.97	.95	1.04	.88	.83	1.23	.87	1.20	.....	.97	1.15	1.20	1.15	1.02
37–37.9	1.04	.99	.97	1.06	.90	.85	1.25	.89	1.22	.....	.99	1.17	1.22	1.17	1.04
38–38.9	1.06	1.01	.99	1.08	.92	.87	1.27	.91	1.24	.....	1.01	1.19	1.24	1.19	1.06
39–39.9	1.08	1.03	1.01	1.10	.94	89	1.29	.93	1.26	.....	1.03	1.21	1.26	1.21	1.08
40 and above	1.10	1.05	.....	1.12	.....	.....	.....	.95	1.28	.....	1.05	.....	.....	.....	1.10
40–40.9	.....	.....	1.03	.....	.96	.91	1.31	.....	.....	.....	.....	1.23	1.28	1.23	.....
41–41.9	.....	.....	1.05	.....	.98	.93	1.33	.....	.....	.....	.....	1.25	1.30	1.25	.....
42–42.9	.....	.....	1.07	.....	1.00	.95	1.35	.....	.....	.....	.....	1.27	1.32	1.27	.....
43–43.9	.....	.....	1.09	.....	1.02	.97	1.37	.....	.....	.....	.....	1.29	1.34	1.29	.....
44–44.9	.....	.....	1.11	.....	1.04	.99	1.39	.....	.....	.....	.....	1.31	1.36	1.31	.....
45 and above	.....	.....	1.13	.....	1.06	1.01	1.41	.....	.....	.....	.....	1.33	1.38	1.33	.....

*Minimum price and applies also to purchases of lower gravity.

†Maximum price and applies also to purchases of higher gravity.

[1] Tomball, Raccoon Bend (Deep Sand) and Satsuma.

[3] Includes Goose Creek, Sugarland, West Columbia, Thompsons, Mykawa, Amelia, Webster, and Clear Lake fields.

[3] Includes Berwick, Bay St. Elaine, Caillou Island, Dog Lake, Four Isle, Gillis, Horseshoe Bayou, Iberia, Jefferson Island, Lake Barre, Lake Pelto, Leesville and Port Barre fields.

[4] Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, Turtle Bay, Hull, Liberty, Orange, Pierce Junction, Barbers Hill and Raccoon Bend (shallow sand) fields.

[5] Includes Saxet, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

[6] Includes Duval, Jim Hogg, Jim Wells, Webb and Zapata counties, Texas, and Heyser and Placedo fields.

[7] Oklahoma Pipe Line (Carter Oil) and Magnolia schedules.

[8] Includes La Barge, Midway Dome, Dutton Creek.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Smackover	$0.73	10–12–38
Louisiana:		
Garden Island	1.24	10–12–38
Gibson	1.04	10–11–38
Lafitte	1.04	10–12–38
Texas:		
East Texas	1.10	10–12–38
Talco	.55	10–12–38
Livingston, Cleveland	1.10	10–12–38
Van	.93	10–12–38
Pettus	1.29	10–12–38
Pecos County	.78	10–12–38
Pecos Shallow	.65	10–12–38
Luling	.87	10–12–38
Lytton Springs	.99	10–12–38
Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski	.96	10–11–38
Flour Bluff	1.27	10–11–38
Seabreeze, Willow Slough, La Belle, Hardin	1.00	10–13–38
Clay Creek	.85	10–13–38
Conroe	1.27	10–11–38
Cayuga	.81	10–19–38
Long Lake	1.08	10–19–38

Middle West Prices

Lima, Ohio	$0.90	10–13–38
Illinois	1.05	10–13–38
Illinois Basin	1.15	10–13–38
Centralia, Illinois	1.15	10–13–38
Princeton, Indiana	1.05	10–13–38
Western Kentucky	1.10	10–13–38
Kentucky River, Eastern Kentucky	1.40	7– 1–38
Big Sandy River, Eastern Kentucky	1.32	7– 1–38

Michigan Prices

	Flat Price	Date Posted
Porter, Greendale, Crystal	$0.92½	10–13–38
Buckeye, Bentley, Edenville and Beaverton	.90	10–13–38
Freeman	.87	10–13–38
West Branch and Arenac	.74	10–13–38

Rocky Mountain States Prices

Colorado:		
Cannon City, Ft. Collins, Wellington, Moffat and Florence	.90	10–11–38
Iles, Light	.98	10–11–38
Iles, Heavy	.92	10–11–38
Montana:		
Cat Creek—Cut Bank	1.10	10–11–38
Sunburst	.90	11–16–37
Dry Creek	.92	10–11–38
New Mexico:		
Artesia	.77	10–11–38
Hogback	1.00	10–11–38
Wyoming:		
Big Muddy	.98	10–11–38
Byron	.55	10–11–38
Elk Basin	.90	10–11–38
Frannie, Light	.55	10–11–38
Frannie, Heavy	.42	10–11–38
Garland	.50	10–11–38
Grass Creek, Light	.90	10–11–38
Grass Creek, Heavy	.40	10–11–38
Hamilton Dome	.35	10–11–38
Lance Creek	.77	10–11–38
Mill Creek	.72	10–11–38
Oregon Basin	.50	10–11–38
Osage	1.30	10–11–38
Poison Spider	.59	10–11–38
Rock Creek	1.00	10–11–38
Tensleep	.646	10–11–38
Salt Creek, Dalton Creek, Midway: Oklahoma gravity scale	.....	10–11–38

Pennsylvania Prices

	Flat Price	Date Posted
Bradford-Allegheny	$1.68	9– 1–38
National Transit Lines	1.68	9– 1–38
Sw. Pa. Pipe Line	1.34	9– 1–38
Eureka Pipe Line	1.28	9– 1–38
Buckeye Pipe Line	1.18	9– 1–38
Corning Grade, Ohio	.97	10–18–38

Major Price Changes

	Penna. (Nat. Tr.)	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
Aug. 11, 1933	Up 10	.....	.....
Aug. 24, 1933	.....	Up 10	.....
Aug. 30, 1933	Up 15	.....	.....
Sept. 6, 1933	Up 10	Up 10	Up 15
Sept. 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
Nov. 6, 1934	Cut 25	.....	.....
Dec. 6, 1934	Cut 25	.....	.....
Jan. 4, 1935	Up 15	.....	.....
Feb. 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
Aug. 29, 1935	.....	.....	Cut *1
Sept. 6, 1935	Up 5	.....	.....
Oct. 29, 1935	Up 15	.....	.....
Nov 1, 1935	.....	.....	Up *28
Nov. 18, 1935	Up 15	.....	.....
Dec. 6, 1935	.....	.....	Up *9
Jan. 9, 1936	.....	Up 10	.....
Jan. 13, 1936	Up 15	.....	.....
Feb 26, 1936	.....	.....	Up †5
Dec. 28, 1936	Up 12	.....	.....
Jan. 28, 1937	.....	Up 12	.....
Feb. 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
Sept. 1, 1937	Cut 22	.....	.....
Oct. 12, 1937	Cut 25	.....	.....
Dec. 1, 1937	Cut 15	.....	.....
March 7, 1938	Cut 17	.....	.....
June 13, 1938	Cut 25	.....	.....
Sept. 1, 1938	Cut 12	.....	.....
Oct. 11, 1938	.....	Cut 20	.....

* Signal Hill 26 gravity.
† Seal Beach 26 gravity.

Crude Production Taxes

Oklahoma—Five percent of gross value less royalty interests.
Texas—2¾ cents or 2¾ percent, whichever is higher.
Louisiana—From four to 11 cents a barrel, depending upon gravity.
Arkansas—2.6 percent of gross market values.
Montana—Two percent of gross value at well and 3/8 of 1c per barrel.
New Mexico—Severance tax of 2 percent on oil and gas.
Wyoming and New Mexico—Production tax based upon state and county assessments.
California—.66443 mills per barrel of oil produced and 17.39 cents an acre on proved lands.

Tolbert to obtain 33,699 barrels of 38-39-gravity oil for 24 cents per barrel.

A. D. Riley, who has figured in previous sales engineered by the attorney general's department since mid-September, paid 25 cents per barrel for 19,963 barrels of 33.8-gravity crude. This oil has been stored in Rusk County.

A total of 1,420,000 barrels of confiscated oil products have been released for refining and marketing within the state through 18 sales conducted since mid-September. East Texas refineries are absorbing the products, which cost about 50 cents per barrel delivered, and are actively accumulating stocks that will fill their needs over a long period.

Numbers of additional sales of confiscated products are pending.

K-M-A unconnected wells without relief

Relief from pipe line proration experienced by K-M-A's deep production since August 1 will not be available for some months hence unless new purchasers are attracted to the field. The Railroad Commission appealed to the five crude purchasers to set up their runs to the full quota allotted under the 5-day production week schedule. Two buyers have been taking 80 percent of the allowable; one concern 75 percent; and the second largest purchaser 65 percent.

The Texas Company offered to increase to 100 percent if relieved of 120 well connections. Gulf Refining Company, pipe line division, which has been taking the full allowable, offered to take 50 additional wells. Others have announced that the abbreviated schedule is taxing their market demand, and that if runs can be increased their old connections will increase to the full allowable before absorbing more connections.

Independents consider pipe line purchase

Purchase of parts of the gathering system of Sinclair Refining Company, pipe line division, in Elk, Chautauqua, Montgomery and Wilson counties, Eastern Kansas, is under consideration by a group of independent producers. The proposition involves construction of a refining plant in the area.

The proposition is under the leadership of Diller Oil & Gas Corporation, Eureka, Kansas, one of the producers in the shallow fields in Kansas.

Recently Sinclair Prairie Oil Marketing Company announced its intention of withdrawing as a purchaser in parts of Eastern Kansas. Early in November part of the affiliated gathering system was sold to a Chanute, Kansas, refining concern.

Because of the distress among producers, the Kansas Corporation Commission scheduled a hearing in Independence. This has been postponed until December 6 because of indications that the market outlet would be provided through other channels.

W. B. HAMILTON, and W. H. Hammon, both of Wichita Falls, Texas, and James E. Allison, Tulsa, last week organized the Rhodes Pool Gasoline Company, which will maintain headquarters at Wichita Falls.

East Texas crude cut discounted

The 35-cent crude price cut put into effect November 15 in the East Texas field by Cordova Gathering Company has been generally discounted since the company has operated on state tenders since making its initial runs on August 16, 1936. It is currently connected to 260 wells situated in marginal and submarginal areas on the east and west sides of the field. Deliveries have been made to local refineries.

W. R. Skeen is head of the company, and is also president of Tyler Oil & Refining Company, which has accumulated a large volume of confiscated oil products, involving the payment of a maximum price of 31½ cents per barrel to the state.

Property owners served by Cordova Gathering Company protested against the 75-cent price posting, and were occupied the past week contacting other buyers for relief.

Osage producers try to obtain market

Osage County crude oil producers have rejected the purchasing proposal of Barnsdall Refining Company, whose refining plant at Barnsdall resumed operation December 1, after being shut down since October 12. The proposal was that oil would be taken at posted prices less 12 cents a barrel gathering charge.

Producers met in Tulsa November 29 and considered the proposition. At that time H. E. Geiger, committee chairman, told of a proposal from Shell Petro-

CALIFORNIA CRUDE OIL PRICES

(Posted February 26, 1936; except El Segundo and Wilmington, posted October 15, 1937, and Greeley and Canal posted July, 1938). All gravity above those quoted take highest prices of that field.

Gravity	El Segundo & Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Springs	New Hall McKittrick Kern River Round Mountain	Greeley, Canal	Mountain view	Midway-Sunset Buena Vista Hills Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Wilmington
14-14.9	$.80	$.79	$.78	$.79	$.80	$.76	....	$.80	$.76	$.76	$.77	$.78	....	$.70	....	....	$.70	$.70	$.70	....	$.75
15-15.9	.80	.79	.78	.79	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.75
16-16.9	.80	.79	.78	.79	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.75
17-17.9	.80	.79	.78	.81	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.77
18-18.9	.80	.79	.78	.84	.80	.78	....	.82	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.79
19-19.9	.82	.79	.82	.87	.84	.81	....	.85	.76	.78	.77	.78	....	.70	....	$.70	.74	.74	.71	$.70	.82
20-20.9	.85	.79	.85	.90	.88	.84	....	.88	.78	.82	.77	.80	....	....	....	.70	.78	.78	.72	.70	.85
21-21.9	.88	.79	.89	.93	.93	.88	....	.91	.80	.85	.77	.84	$.78	....	....	.73	.82	.82	.74	.70	.88
22-22.9	.92	.82	.92	.96	.98	.92	....	.93	.84	.89	.79	.88	.78	....	....	.77	.87	.86	.78	.72	.92
23-23.9	.95	.86	.96	.99	1.02	.96	$.84	.96	.88	.93	.82	.92	.78	....	....	.80	.92	.90	.82	.76	.95
24-24.9	.99	.91	1.00	1.02	1.06	.99	.88	.99	.91	.96	.85	.96	.82	....	....	.84	.97	.94	.86	.79	.99
25-25.9	1.03	.95	1.03	1.05	1.11	1.03	.93	1.02	.95	...	.89	.99	.86	....	....	.88	1.01	.98	.90	.83	1.03
26-26.9	1.06	1.00	1.07	1.09	1.16	1.06	.98	1.05	.98	...	.92	1.03	.90	Elwood	....	.91	1.06	1.02	....	....	1.06
27-27.9	1.10	1.05	1.11	1.12	....	1.10	1.03	....	1.02	...	.96	1.06	.95	Terrace	$.91	.95	1.10	1.06	....	....	1.10
28-28.9	1.14	1.10	1.14	1.15	....	1.14	1.07	....	1.06	...	.99	1.10	.99	....	.94	.99	1.15	1.10	....	....	1.14
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	....	1.09	...	1.03	1.14	1.03	....	.98	1.02	1.20	1.14	....	....	1.17
30-30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17	....	....	...	1.07	1.17	1.08	F.O.B.	1.02	1.06	1.25	1.18	....	....	1.21
31-31.9	....	....	....	1.24	Line	1.24	1.22	Kettleman Hills			1.11	1.21	1.12	Ship	1.06	1.09	1.29	....	....	....	....
32-32.9	....	....	....	1.27	....	1.27	1.27	1.19			1.14	1.25	1.16	...	1.09	1.13	1.34	....	....	....	....
33-33.9	....	....	....	....	....	....	1.32				1.18	1.28	1.20	1.28	1.13	1.17	1.38	....	....	....	....
34-34.9	....	....	....	....	....	....	1.37	....	1.23	...	1.22	1.32	1.25	1.32	1.17	1.20	....	....	....	....	....
35-35.9	....	....	....	....	....	....	1.42	....	1.27	...	1.25	....	1.29	1.35	1.20	....	....	....	....	....	....
36-36.9	....	....	....	....	....	....	1.46	....	1.31	...	1.29	....	1.33	1.39	1.24	....	....	....	....	....	....
37-37.9	....	....	....	....	....	....	1.51	....	1.35	...	1.32	....	1.37	1.43	1.28	....	....	....	....	....	....
38-38.9	....	....	....	....	....	....	1.56	....	1.39	...	1.36	....	1.42	....	1.31	....	....	....	....	....	....
39-39.9	....	....	....	....	....	....	1.61	....	1.43	...	1.40	....	....	....	1.35	....	....	....	....	....	....
40-40.9	....	....	....	....	....	....	1.66	....	....	...	1.43	....	....	....	1.39	....	....	....	....	....	....
41-41.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.43	....	....	....	....	....	....
42-42.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.46	....	....	....	....	....	....
43-43.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.50	....	....	....	....	....	....
44-44.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.54	....	....	....	....	....	....
45-45.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.57	....	....	....	....	....	....
46-46.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.61	....	....	....	....	....	....
47-47.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.65	....	....	....	....	....	....
48-48.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.68	....	....	....	....	....	....

leum Corporation, which has indicated willingness to buy the distress oil provided producers will deliver it to the main Shell trunk line system. The committee was instructed to continue negotiations with the Shell Petroleum Corporation.

The Barnsdall plant was closed because of inability to show a profit. The announcement to resume operations was accompanied by a price schedule of 70 cents a barrel for oil below 21 gravity with 2 cent differential for each point on the gravity scale up to 40 and above, where the price would be $1.10 a barrel, "less 12 cents a barrel gathering charge."

The plant has capacity of 5,000 barrels daily and cracking capacity of 2,500 barrels. Since Barnsdall Oil Company has considerable production in both Tulsa and Osage counties, plant operations came about on schedule. The amount of oil controlled by other producers is 3,000 barrels daily.

Reduction of 20 percent in purchases from the Healdton pool was adopted December 1 by Ben Franklin Refining Company, major purchaser in that field. This concern came into position as a crude oil buyer in October after buying the Ardmore refining plant of the Wirt Franklin Petroleum Corporation. It also bought pipe lines and gathering systems of the Coline Oil Company and the Pure Oil Company, which withdrew as a purchaser in Healdton.

Lack of a market for refinery output was the reason for reduction in oil purchases.

Crude Production

United States output drops 48,975 barrels daily to 3,208,350 barrels; 182,950 below bureau figure

DURING the week ended December 3, United States crude oil production showed a drop of 48,975 barrels to average 3,208,350 barrels daily. At this new level production was under the indicated market demand for domestic crude by 182,950 barrels daily.

Responsible for the decline were losses principally in Oklahoma and California followed by smaller decreases in Kansas and New Mexico, which greatly exceeded minor gains in Texas and Louisiana.

Texas production was up 3800 barrels, the daily output having been 1,270,500 barrels daily, which was 100,500 barrels less than the Bureau of Mines recommendation and 9153 barrels less than the allowable prescribed by the state.

California showed a decrease of 18,300 barrels, having averaged 646,200 barrels daily, which was 29,500 barrels more than the federal allocation and 31,200 barrels more than the recommendation of the Central Committee of California Oil Producers.

Oklahoma averaged 417,550 barrels a day, or 29,600 less than in the previous week. That was 94,450 barrels a day less than the estimated market demand and 10,450 less than the state allowable.

Kansas output was down 7650 barrels daily, having averaged 148,350 barrels a day, which was 15,950 barrels a day less than the Bureau of Mines recommendation and the state allowable.

Louisiana had a gain of 1275 barrels, having averaged 260,450 barrels a day. This exceeded the indicated demand by 4150 barrels and the state allowable by 24,950 barrels a day.

League City order

The Texas Railroad Commission for the third time has issued an emergency order providing a 20 acre spacing rule for wells in the League City Field, Galveston County. Permanent rules based on the hearing held in Galveston last month have not yet been issued.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Nov.)	State Allowable in Nov.	BARRELS DAILY FOR WEEK ENDED Dec. 3	Nov. 26
TEXAS—				
Texas Panhandle			63,800	60,300
North Texas			75,400	75,100
West Central Texas			30,900	31,300
West Texas			204,900	203,100
East Central Texas			91,800	93,600
East Texas Field			370,800	371,400
South Texas			223,700	223,400
Texas Gulf Coast			209,200	208,500
Total Texas	1,371,000	1,279,653†	1,270,500	1,266,700
CALIFORNIA—				
Long Beach			54,000	54,400
Santa Fe Springs			30,000	31,300
Huntington Beach			29,500	31,200
Dominguez			26,000	26,000
Ventura Avenue			34,500	33,200
Midway-Sunset			47,000	61,500
Kettleman Hills			59,000	65,900
Wilmington			95,400	96,800
Others			270,800	264,200
Total California	616,700	615,000*	646,200	664,500
OKLAHOMA—				
Oklahoma City			77,550	104,375
Seminole Area			98,000	98,850
Fitts			35,800	36,750
Others			206,200	207,175
Total Oklahoma	515,000	428,000	417,550*	447,150
LOUISIANA—				
North Louisiana			72,550	70,875
South Louisiana			187,900	188,300
Total Louisiana	256,300	235,500	260,450	259,175

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Nov.)	State Allowable in Nov.	BARRELS DAILY FOR WEEK ENDED Dec. 3	Nov. 26
KANSAS—				
Burrton-Haven			8,125	9,100
Russell County			21,300	20,100
Silica			9,750	10,225
Others			109,165	116,575
Total Kansas	164,300	164,300	148,340	156,000
NEW MEXICO	111,000	108,400	106,200	108,050
MICHIGAN	50,300		51,600	52,100
ARKANSAS	52,300	52,300	48,600	49,350
MOUNTAIN STATES—				
Wyoming	74,700		54,850	54,300
Montana	13,300		13,600	13,800
Colorado	4,000		3,750	3,900
Total Mountain States	92,000		72,200	72,000
EASTERN STATES—				
Pennsylvania Grade			65,700	70,800
Southern Illinois (New Pools)			85,300	77,400
Illinois-Indiana (Old Pools)			13,100	12,600
Others, Eastern			22,600	21,500
Total Eastern States	162,400		186,700	184,600
Total United States	3,391,300		3,208,350	3,257,325

† Daily average, considering Saturday and Sunday shut-downs.

* Recommendation of Central Committee of California Oil Producers.

WEEK'S DRILLING HIGHLIGHTS

California

Another oil field is opened in San Joaquin Valley with a flow of more than 3700 barrels from 8677 feet, and may affect development of the Naval reserve. Coalinga Nose has a well estimated capable of making 60,000 barrels daily from 505 feet of sand, the result of drilling deeper in an old shallow area. Abandonment of deep wildcats in Kern County is followed by new starts.

Oklahoma

Flowing ouput of 420 barrels in 3 hours and 20 minutes from a southern Seminole County test gave that part of the Greater Seminole area assurance of further testing. The well offsets a small Hunton lime producer, which had saturation in the Viola lime but was plugged back to make its production. Cleveland County is still carrying a list of wildcat tests, which have given scant encouragement.

Kansas

Showings in Harvey, Russell and Rooks counties kept Kansas up to its usual pace last week. The week had four wells, which indicated either new fields or extensions for older ones. In general, field work is slowing down in Kansas, with both completions and locations being fewer each week.

North Louisiana

The new Shreveport field still holds the center of interest and four offset locations have been announced there. A flank test at Cotton Valley is setting to test a good saturation in the E sand.

Comparison of Permits Granted for New Wells

STATE	Week Ending Dec. 3	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	5	5	230	235	240
Californ	24	24	1,095	1,500	1,584
Louisiana	39	39	1,173	1,179	1,227
Kansas	21	21	1,390	2,562	2,663
Michigan	15	15	883	907	958
Oklahoma	27	27	1,853	2,594	2,711
Texas	267	267	11,864	16,345	17,238
Total	398	398	18,488	25,322	26,621

New Mexico

Leases soon to expire have caused four wells to start drilling in the Lovington area of Lea County where the discovery gasser is still in process of completion. Participants in the rush expect oil production. Test on the Milnesand prospect has found nothing and is going deeper.

West Texas

Distance between Bennett field and the Wasson area has been reduced to 3½ miles, but no rush of drilling is expected because of line outlet situation.

Texas Gulf Coast

Mount Houston has an oil well, its importance yet to be determined as it is cleaning itself slowly. The Montgomery County well has made a gasser. Second try at League City was too wide. Iowa Colony has another failure.

South Louisiana

Lake Verret, St. Martin Parish, is being tested with fair prospects of an oil well.

Illinois

Prospect that development will extend into north central Illinois counties is seen in showing of a wildcat in Sangamon County which has 21 feet of "commercially favorable" Trenton lime that is to be acidized before a test. A north extension at Lake Centralia is having trouble with water, but a southwest extension is making a pumper.

Mountain States

Attention is centered on possibility of production in the Wall Creek sand in a test nearing that formation in the Cole Creek field.

This interest is because of a showing in another test a mile away which was not commercial. Montana work is slowing up with the coming of winter.

East Texas

Current increase in drilling in the East Texas field is expected to fall off after the first, as it is the custom to get some expense on the books at this time of year. Shelby County's gas-distillate area has a well flowing crude oil along with the distillate.

Summary of Wells Completed in the United States Week Ending December 3, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1938	Total this Date 1937
Alabama	....	....	....	....	.....	2	2
Arkansas	4	4	....	....	3,855	208	128
California	19	14	....	5	11,157	1,184	1,374
Colorado	1	1	....	....	2	10	18
Florida	....	....	....	....	.....	....	1
Georgia	....	....	....	....	.....	1	....
Illinois	119	92	1	26	29,920	1,756	350
Indiana	....	....	....	....	.....	153	122
Kansas	24	16	2	6	22,067	1,571	2,524
Kentucky	24	13	4	7	1,178	767	524
Louisiana	4	4	....	....	1,004	1,002	943
Michigan	16	11	....	5	3,515	932	890
Mississippi	....	....	....	....	.....	19	15
Montana	2	1	1	....	201	75	193
Nebraska	....	....	....	....	.....	1	....
New Mexico	6	5	1	....	4,660	495	644
New York	*10	9	1	....	32	*623	*1,176
North Dakota	....	....	....	....	.....	1	....
Ohio	16	4	9	3	21	881	1,393
Oklahoma	29	16	5	8	2,408	1,975	2,780
Pennsylvania	*27	23	3	1	32	*1,887	*2,799
Tennessee	....	....	....	....	.....	2	....
Texas	188	131	3	54	145,813	11,574	14,157
Utah	....	....	....	....	.....	4	1
West Virginia	10	....	8	2	.....	660	911
Wyoming	....	....	....	....	.....	103	102
Total this week	499	344	38	117	225,865	25,886	31,047
Total last week	503	362	29	112	227,031	....	.....
Total this year	25,886	17,940	1,855	6,091	16,069,122	....	.....

* Includes water-intake and pressure wells.

Oklahoma Fields

Southern Seminole County well flow to encourage drilling. Hillsdale water increase leaves two offsets in doubt.

Tulsa.—Southern Seminole County came into position for further testing of an old area last week by completion of a flowing well, Collins 1, NE SE NW 4-5n-6e, from the Viola lime, top 3203, total depth 3270 feet. It was drilled by Arch Oil Company of Oklahoma City. It is a south offset to a small Hunton lime producer, completed in 1937 by Stanolind Oil & Gas Company, Amerada Petroleum Corporation and Mid-Continent Petroleum Corporation in SE NE NW, which went to 3319 feet and was plugged back to 3104 feet, where it is still pumping from the Hunton lime. General impression is that the first test by Stanolind Oil & Gas Company and associates could have been completed in the Viola lime.

The Viola lime is an erratic performer in the Greater Seminole area. For that reason most producers prefer the other producing formations. The large output in Collins 1, however, will result in further testing in the immediate area.

Other than this well the week was without consequence in field activity. The several tests in Cleveland County were still in the doubtful class. Only 32 wells were completed during the week, 16 being producers. There were 5 gas wells, 8 dry holes and 3 abandoned locations. Only 27 wells were started.

Search for new pools in Cleveland County was at a questionable stage at the end of the week, with four wildcat wells holding the answer.

A mile north of the single producing well which uncovered the Noble field, Gulf Oil Corporation was plugging back from 7676 feet in Taylor 1, SE SE SW 1-7n-2w. It had salt water at that level and several tests had failed to indicate saturation in the second Wilcox sand.

East of the Noble discovery, Burke Greis Oil Company was ready to spud Albert 1, C SW NW 19-1n-1w, a wildcat. The Noble discovery was drilled by W. A. Delaney, Burgher 1, SE SW 12-7n-2w, and completed in May for 770 barrels from Second Wilcox sand, plugged back total depth 7682 feet. Since completion it has made water consistently.

Elsewhere in Cleveland County, Nels Burton was fishing in Norman 1, NW NW NE 17-9n-2w, after perforating casing at 7540 feet and getting 5000 feet of fluid, largely water. Big Chief Drilling Company and Guy Hannum had pipe stuck at 6300 feet in Strateger 1, NW NW SW 25-9n-2w. Harper and Turner were drilling below 4500 feet in Taylor 1, SE NE NW 23-8n-2w, a wildcat north of Noble.

Water continues to increase in McClure 2, C SE SE 28-2s-3w, Carter County, another of the deep wells in the Fox-Milroy area. It is making around 250 barrels of oil and as much as 700 barrels of water, flowing through tubing from the Oolitic lime, total depth 8205 feet.

Other deep wells in this area are: Gulf Oil Corporation's Empire 1, C SE SE 27-2s-3w, drilling 6265 feet in Viola lime; Gulf Oil Corporation's Franklin 1, C NW SE 27-2s-3w, testing at 7575 feet; Gulf Oil Corporation's Garrett 8, C NW SW 27-2s-3w, drilling 7975 feet; Magnolia Petroleum Company's Hefner-Mills 1, C SW NE 27-2s-3w, drilling in Viola lime 6395 feet.

Consistent showings of gas and oil have been found in cores taken from the community test in the Chickasha gas field, Grady County, Smith 1, C SE SW 26-5n-8w, which is drilling below 6000 feet. This test is slated to go to 10,000 feet. Hole is being made slowly because of frequent coring. Farther west the Washita County deep wildcat of Continental Oil Company, Proctor 1, C NW 28-10n-20w, is close to its scheduled depth of 10,000 feet.

It is possible that both these tests will be carried deeper than the contract depths should drilling prove encouraging from evidence at the higher levels.

Continued increase of water in the discovery well of the Hillsdale field, Garfield County, leaves that area waiting for results from two offsets now drilling around the one producer. This well, Champlin Refining Company's Boehm 1, SW SW NE 4-24n-8w, is now making more oil than water while flowing through tubing. A northwest offset, Boehm 2, C N½ SE NW, 4-24n-8w, is drilling around 3500 feet; Mackey 1, a south offset, NWc SE 4-24n-8w, is below 5400 feet. Both are being drilled by Champlin Refining Company.

An effort is being made to get production from the Simpson dolomite in the second test south of Braman, where Olson Oil Company got production from Vanek 1, SE SW NE 4-12n-3w, in the Second Wilcox sand. The second well, Seberger 1, SE SW NE 4-12n-3w, has saturation on the dolomite, total depth 6779 feet. Testing will begin after drilling plug.

Another producer for the Braman southeast pool, Kay County, is indicated from cores taken from Second Wilcox sand by Helmerich & Payne, Inc., and Ohio Oil Company, whose Wilbur 2, NE NW NW 21-2n-1w, had top of this formation at 3605 feet and first saturation at 3640 feet. Casing is being set.

Failure to find saturation in the Second Wilcox sand in a second test for the Meridian pool, Logan County, leaves a question as to the extent of output there. This well, Humphreys 1, NE NW SW 27-16n-1e, is at 5314 feet with salt water in the hole. It is a southwest offset to the discovery well, drilled by Sinclair Prairie Oil Company, Crews 1, SW SW NE 27-16n-1e, which was completed last May after plugging back to the Second Wilcox, total depth 5234 feet, where it flowed 1080 barrels.

A south offset to the discovery well, Strain 1, being drilled by Helmerich & Payne, Inc., NW NW SE 27-16n-1e, is waiting on standard tools to drill out the plug. Pipe was set at 5168 feet, total depth 5222 feet, top of the Simpson dolomite 5195 feet.

A drilling pattern of one well to 20 acres was assured for the new Coyle Pool, Payne County, when the Oklahoma Corporation Commission made such an order last week. Two wells are drilling near the discovery well, Summit Drilling Company's Johnson 1, C W½ SW SW 12-17n-1e. It is a north offset to the discovery, drilled by The Texas Company, Longan 1, C W½ NW NW 12-17n-1e, where it made potential of 450 barrels from the first Wilcox sand, plugged back depth 4960 feet. The other well is being drilled by Amerada Petroleum Corporation and Stanolind Oil & Gas Company, Buck 1, C Wp SW NW 12-17n-1e, a south offset to the discovery well.

Potential of 7030 barrels was recorded for the seventeenth producer for the Ramsey pool, Payne County, Gray 2, NW SE SW 18-18n-2e. This well left the field without a drilling well, however, at least two more locations are in prospect for the community block, which is being operated by Mid-Continent Petroleum Corporation.

North of the Grayson pool, Seminole County, Superior Oil Company had a Simpson dolomite showing in Swan 1, NW NE NE 12-6n-5e. A swabbing test of 110 barrels from 3794 feet was made last week. The well is due for acid treatment for further testing. It is a quarter of a mile from other production.

A Wilcox sand failure for the Traugh pool was completed last week by Atlantic Refining Company, Howell 1, NE SW NW 22-6n-6e, total depth 3761 feet.

This company has a pumping completion for the second well in the North Ashver field, Pottawatomie County, Goss 1, NW SE 6-6n-4e, Second Wilcox sand 4502 to 4516 feet. This well was dry in the Viola lime, which gave the area its first well.

In Creek County, the Tuskegee area has a showing for Miesener sand production where the Lease Investment Company, Barks 1, NW SE NW 28-14n-10e, has 2000 feet of oil in the hole, total depth 3240 feet. It is to set casing for testing.

Fiftieth Osage auction

Pawhuska.—The fiftieth sale of Osage tribal leases will be held at auction here December 6. Colonel E. Walters of Skedee cried the first such sale November 11, 1912, and has cried each one since. December 6 will find him on the job again.

OKLAHOMA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Carter—		
Rips Oil Co., Pierce 1, nwc ne 22-2s-2w (pb 1242 ft)	8	1315
Shell, McClure 55, ne sw ne sw 5-4s-3w	37	1141
Creek—		
Frierson & Kirchmer, Morton 3, ne se se 27-14n-10e	40	3277
Strozier, McDougal 2, sw se nw 12-16n-11e	*	2729
Hughes—		
Carter, Hamilton 1, csl nw ne se 33-4n-9e (pb 5541 ft)	¶22	6177
Davon, Wesley 1, cwl sec nw 5-8n-10e	*	3217
Kay—		
Atlantic, Watson 1, sec nw 28-28n-1w	*	3701

*Failures; †Junked; ¶Million cu. ft. gas.

Company, Well and Location	Init. Prod. Bbls.	Depth
Lincoln—		
Stanolind, James 2, sec sw 35-13n-5e	731	4225
Wilcox O&G Co., Saylor 3, sw nw nw 14-14n-6e	95	2967
Summitt Drl. Co., Gordon 1, nec 27-17n-2e	*	4898
Logan—		
Continental et al, Donahue 1, nwc sw 16-18n-2w	*	6023
Muskogee—		
Heydrick, Pugh 2, nw nw ne nw 22-13n-19e	¶2.5	640
Oklahoma—		
Cromwell & Franklin, Park 35, sec sw 12-11n-3w	¶13	4480
Okmulgee—		
Commercial Drl. Co., Parks 2A, nw se ne ne 35-15n-12e	¶1.25	1610
Pawnee—		
Magnolia, Lescher 6, ne sec ne 21-20n-6e	*	3485
Pontotoc—		
Blackstock, Craddock 3, nw ne se 25-2n-6e	59	4258
Stanolind, Norris "E" 6, swc se 25-2n-6e	*	2631
Sinclair Prairie, McCarty 5, nw nw ne ne 22-2n-7e	145	1347
Orden & Frazier, Ackin 1, nwc se 2-7n-4e	15	3493
Pottawatomie—		
Magnolia, Martin 2, ne se nw 34-7n-4e	182	4260
Trigg, Canfield 4, se nw sw 33-7n-5e	154	4218
Seminole—		
McQueen et al, Bruner "C" 8, sec ne 4-6n-6e (pb 2725 ft)	144	2995
Rogers & Rogers, Baxter 2, nw ne nw 36-7n-5e	16	2860
Week Ending November 26		
Caddo—		
Palmer Oil Corp., Sterba 1, nec sw 35-6n-10w	48	3545
Carter—		
Shell, Johnson 25, se nw se sw 4-4s-3w	12	1130
Comanche—		
E. N. Eldridge, Aetna Life 1, sw se sw 2-1n-10w	*	1705
Creek—		
Big 4 Pet. Co., Copeland 2, sw se sw 24-19n-7e	40	2685
Wood Oil Co., Gabrial 2, ne nw sw 24-19n-7e (pb 2675 ft)	15	2760
Sinclair Prairie, Upton 14, csl nec 4-16n-12e	*	1697
Dundee, Beaver 8, nw nwc ne 4-17n-12e	*	1860
Garvin—		
Edwards, Clark 2, nwc 15-3n-3e	*	2115
Grady—		
McCasland et al, Clark 2, sw nw nw 8-3n-5w	50	2782
Cox & Hamon, Gibson 1, sw se nw 16-3n-5w	*	1891
Kay—		
Helmerich & Payne, Rudolfe 1, nec sw 27-29n-1w	*	3653
Muskogee—		
Link Oil Co., Mathews 12, cwl sw ne sw 19-15n-15e (1509 ft)	5	1566
Okfuskee—		
Titas, Replogal 1, sw nw se 23-11n-8e	*	3575
Okmulgee—		
Oklahoma Oil Corp., Lasky 1, nw sw ne se 11-13n-11e	88	3275
Lambert, Lewis 1A, sw sw se sw 20-15n-14e	*	2340
Francis Oil Co., Adams 4A, ne nec nw 33-15n-14e	5	1577
Bryan Pet. Co., McGowan 1, nw nw se ne 32-16n-11e	*	2158
Osage—		
Norble & Howard, 1, nwc ne 31-21n-9e	*	2477
McBride, 1, nec nw 10-23n-10e	*	2241
Pontotoc—		
Newsom, Walker 4, se nwc sw 11-4n-6e	5	1178
Pottawatomie—		
Denver P&R Co., Hurford 1, cwl nw ne se 2-6n-4e	100	4168
Sinclair Prairie, M-qua-ka 3, se sw sw 11-7n-4e	92	4190
Wood Oil Co., Swan 2, nwc se 36-7n-4e	280	4276
Tober & Coleman, Brisco 1, swc ne 29-7n-5e	200	4176
Trigg et al, Rhodd 2, nw se se 32-7n-5e	468	4118
Trigg & Alma Oil Co., Canfield 2, ne nw sw 33-7n-5e	214	4216
Seminole—		
Simpson-Roodhouse, Watson 1, se ne se 11-6n-5e	*	3187
Smith, Bowles 3, se nw ne 32-7n-6e	175	2870
Stephens—		
Taylor, Fee 2, nw nw ne ne 10-3s-5w	15	1054
Tulsa—		
Hobbs, Tingley 1A, 200 ft west cnl n½ nw 24-17n-12e	12	2297

*Failures; †Junked; ¶Million cu. ft. gas.

Kansas Field Developments

Four wells indicate either new fields or extensions. Field work in general continues weekly slow down.

Wichita.—Showings to indicate new pools and extensions were frequent enough to keep Western Kansas moving at its usual clip last week. One was a showing a mile and a half from the Sperling pool, Harvey County, the old central area, Russell County had two encouraging wells and Rooks County one.

Drilling activity, however, continues to move at a slower pace. The week brought but 24 completed wells while 21 were being started. There were 2 gas wells and 6 dry holes.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Barber—		
Barbara O&G Co., McKee 4, c sw¼ 21-33s-13w	¶2	4335
Barton—		
Shell, Ehrlich "B" 4, csl se ne sw 1-16s-14w	2531	3333
Butler—		
Mold, Yingling 1, sw nw sw se 29-26s-6e	50	2783
Gore, Cannon 1, sw ne ne 28-26s-7e	15	2750
Cowley—		
Smith & Pryor & Lockhart, Wilson 2, ne nw nw 9-33s-6e	443	3523
Ellis—		
Cities Service, Hall "A" 4, sec sw 14-11s-17w	688	3370
Gulf, Mai 1, swc se 14-11s-17w	2800	3365
Grant—		
Panhandle Eastern Gas Co., Parsons 1, c n½ sw 25-30s-37w	¶11	2710
McPherson—		
Pryor-Lockhart, Bixby 2, nw ne sw 24-19s-3w	30	3007
Reno—		
Salt City Gas Co., Bontrager 2, c sw ne 33-24s-5w	*	3472
Rice—		
Continental, Wood 7, ne sw se 12-18s-8w	2543	3227
Transwestern et al, Roessler "B" 1, 100 ft south sw nw nw 6-18s-10w	1798	3248
Schneider-Pulse et al, Johnson 1, nec se 31-20s-7w	340	3342
Russell—		
Texon Drl. Co., Letsch 9, sw se sw 26-14s-13w	2491	2875
Western Kansas O&R Co., Michel 1, csl se ne sw 1-15s-14w	*	3356
Cities Service, Kramer 1, nec nw 14-15s-14w	*	3319
Darby Pet. Corp., Michaelis 10, nw sw se 36-15s-14w	2326	3320
Sedgwick—		
Crowe et al, Murphy 1, swc se 34-29s-1w	*	3925
Stafford—		
I. T. I. O. Co., Meillies 1, swc nw 36-21s-12w	*	3555
Atlantic, Gates 8, sw se se 27-21s-13w	1424	3653
E. H. Moore, Ira Johnson 7, sw se sw 13-24s-11w	1662	3820
Sinclair Prairie, Krey 5, nw ne nw 14-24s-11w	1017	3776
Stanolind et al, Volker 7, cwl sw ne ne 23-24s-11w	1909	3805
Skelly & Texas Co., Kipp "D" 1, sw ne ne se 27-25s-14w	*	3802
Week Ending November 26		
Butler—		
Smith & Polhanus, Leon State 2, sw se se 32-27s-7e	*	2829
Soloman & Alexander, Sawyer 1, sw nw sw 2-28s-7e	*	175
Cowley—		
Trees Oil Co., Lewis 3, ne nw ne 28-21s-4e	2296	3333
Shawver, Wallace 3, ne sw se sw 15-32s-4e	*	2320
Blair & Continental, Dunlap 2, nwc ne 21-32s-5e	228	3093
Grallop & Continental, Community 1, nwc 23-32s-5e (pb 680 ft)	¶5	3557
Ellis—		
Watchorn Oil Co., Braun 2, nw ne ne se 3-14s-17w	569	3505

The Harvey County showing came from the Misener sand in Jones 1, NE NW 7-22n-1w, where E. K. Carey and Derby Oil Company, drilled to the Arbuckle lime, which was dry. It was plugged back to the Misener sand, where casing was set at 3274 feet. When plug was drilled to 3291 feet, the hole filled 800 feet with oil. After a shot of 10 quarts it bailed 4 barrels an hour. The well is 1½ miles northeast of the Sperling pool.

A mile northwest of the Dopita pool, Rooks County, Phillips Petroleum Company has a showing to justify acid treatment of Tanzey 1, C NW SW 25-n-18w. The hole is at 3428 feet.

Encouragement for linking the Silica and South Silica pools came last week with increased output from Peters B-1, NWc 13-20-11w, where Indian Territory Illuminating Oil Company pumped 117 barrels of oil after acid treatment with 4000 gallons, total depth 3292 feet in the Arbuckle lime.

An extension for the Coralena pool, Russell County, was promised by Yankey & Sterns, whose Krug 1, SW SE SW 17-15-13w, filled 2300 feet with oil after penetrating the Arbuckle lime to 3310 feet. Casing is being run for a test. The test is a mile north of production.

A half mile south of the Hall pool, Russell County, Western Kansas Oil & Refining Company has a completion good for 824 barrels in Kiel 1, NE NW NW 6-15-13w, at 2920 feet in the Kansas City-Lansing lime section. North of the Hall pool, a half mile, Phil-Han Oil Company, Weimester 1, SWc 18-

Company, Well and Location	Init. Prod. Bbls.	Depth
Grant—		
Panhandle Eastern, Towler 1, 130 ft west swc nw 20-30s-37w	¶14	2793
Greenwood—		
Lyke, Morris 3, sw ne sw 5-24s-12e	25	1784
Ash & Paul, Taylor 1, ne sec sw 6-27s-12e	*	2179
McPherson—		
McBride, Inc., Whitright 2, nwc sw 30-19s-1w (pb 2999 ft)	157	3422
Dickey Oil Co., Carlson 1, se sw nw 24-19s-3w	133	2989
Rice—		
Continental Oil Co., Meyer 4, 80 ft east sec sw 30-18s-7w	2057	3180
Shell, Zjic 11, nec 13-18s-8w	2717	3196
Shell et al, Warden 1, csl sw nw sw 11-19s-9w	*	3323
Glimac, Malone 1, se sw nw 36-20s-10w	*	3400
Russell—		
Texon Dr. Co., Letsch 8, se sw sw 26-14s-13w	1669	2900
Cities Service, Cook 1, nwc se 4-15s-12w	684	3024
Sedgwick—		
Harwood et al, Shockey 1, nec sw 32-28s-2e	¶10.5	2225
Stafford—		
Crosbie, Inc., Johnson 5, se ne sw 13-24s-11w	2297	3812
E. H. Moore, Inc., Cleo Johnson 1, nw sw se 13-24s-11w	1523	3813
Stanolind, Martin 5, csl nw se nw 14-24s-11w	661	3823
Stanolind & National, Taylor 1, csw¼ 28-25s-12w	*	4224
Sumner—		
Shawver, Ludwig 1, sec ne 29-31s-1w	630	3700
Thomas—		
Ramsey Pet. Co. & Mabee, Ryan 1, cse¼ 27-8s-32w	*	5321

*Failures; †Junked; ¶Million cu. ft. gas.

14-13w, had salt water in the Gorham sand, total depth 3230 feet. It will be plugged back to test upper formations.

Carter Oil Company awards employees safety certificates

Safety came into the limelight with Carter Oil Company November 28 when its first Safety Award Dinner was held at Tulsa. A plaque was presented to the division with the lowest accident frequence for 1937. Then certificates were presented to working forces, which set records of 200,000 man hours or more without a lost time accident, while other certificates were presented to supervisors and forces with like records of 100,000 man hours.

L. G. Owen, general counsel, acted as toast master. A. H. Mitchell, director of personnel and industrial relations, spoke on "Safety—A Factor in Employee-Employer Relations." There was an address by James A. Veasey, who retired November 1 as vice president and general counsel. J. J. Conry, president, presented the safety plaque. F. W. Floyd, vice president, presented awards to the production department; L. F. McCollum, vice president, presented awards within the exploration department. P. A. Tarliff spoke on "Forty Years of Safety."

Winner of the safety plaque was the old Central Division, which included the Greater Seminole area. W. A. Watkins was superintendent there during 1937 and returned from Mattoon, Illinois, to accept the award.

Men who drew certificates because of supervising activities in which no lost time accidents occurred during 200,000 or more working hours are:

Perry A. Ratliff, foreman of the Dunn gasoline plant, Cromwell, Oklahoma.

Foster Precise, farm foreman in the old Southern Division. He is now superintendent of the Southern District.

Elton A. Rose, assistant superintendent, Northern Division.

R. W. Kirkpatrick, superintendent of the Central Division.

Awards to men whose personnel went through 100,000 or more hours without a lost time accident went to:

W. A. Watkins, during his period as superintendent of the Central Division.

Cleo Combs, foreman of a construction group in the Central Division.

Elisha Boothe, foreman of a warehouse group, Healdton, Oklahoma.

A. E. Perry, foreman, Fitts gasoline plant, Fittstown.

George E. Edgett, superintendent of natural gasoline production, Tulsa.

O. D. Harper, farm foreman, Central Division.

Otis Hains, farm foreman in Southern Division.

Charles Quillan, automotive superintendent, Central Division.

John E. Spurrier, electrical shop foreman, Central Division.

William Brown, plant foreman, Grisso gasoline plant, Seminole.

F. W. Bruner, production foreman, Central Division.

W. E. Crutcher, superintendent Northern Division.

In the class of departments in which there were no lost-time accidents in 1937, the following drew awards:

Charles Quillan, automotive superintendent, Central Division; J. M. Sherlock, storage superintendent, Yale, Oklahoma; J. W. Graham, construction foreman, Southern Division; A. M. Hancock, storage foreman, Central Division; O. K. Harper, production foreman, Central Division; J. M. Conway, production foreman, Central Division; Charles E. Wells, production foreman, Southern Division; Melvin Denney, production foreman, Burbank, Oklahoma; Adrian C. Lankford, foreman Grisso gasoline plant, Seminole; Otis Haines, production foreman, Wilson, Oklahoma; M. E. Morrow, foreman, geophysical shop, Tulsa; Thomas E. Brownsfield, head of the scouting and statistical department, Tulsa; R. C. Daniel, gravity meter party chief; Opie Dimmick, seismograph party chief; Condon McKay, head of the land division.

North Texas Developments

Second well completed in Walnut Bend, Cooke County. K-M-A new drilling takes slight turn upward during week.

Wichita Falls.—Completion of a second oil producer from the Strawn zone in the Best pool, located in the Walnut Bend area of northeastern Cooke County, was promised last week when Sinclair Prairie Oil Company's J. M. Best 2, cored 13 feet of oil-saturated sandy-lime. The prospective producing zone was topped at 4907 feet, lower structurally than the company's discovery, which flowed 880 barrels natural last June at 4887-4900 feet. Casing will be run for a test. Best 2 is 720 feet south and 25 feet west of the discovery.

The performance of the discovery well served as a basis for predictions that an important strike had been recorded for North Texas. The company constructed 11 miles of 4-inch line to make tank car shipments of crude from Gainesville. A second test on the S. H. Putman land, located 1650 feet north by west of the producer, checked low on structure, and yielded salt water at 4974-82 feet. It also tested water in the Ordovician, having logged top of Simpson at 5209 feet and Ellenberger at 5449 feet. The hole was plugged back from 6055 feet to 5350 feet to serve as a salt water input well.

Denver Producing & Refining Company's D. B. Allred 1, near southwest corner of 61-acre lease, G. Santos Survey, southeastern Cooke County, encountered favorable oil showings in the Strawn, and is due to run pipe after clearing up a fishing job. Broken sand at 4015-41 feet carried oil saturation, and formation at 4450-78 feet yielded odor of oil. Saturated oil sand was reported at 4515-54 feet followed by shale to 4585 feet. Allred 1 is 660 feet north of a 4357-foot junked hole drilled by Vance Powell et al, and is 1½ miles southeast of Woodbine.

Youngblood and Foree's Burnett 1, Montague County wildcat, remains idle at 4145 feet after testing salt water in the Strawn. Negotiations are pending to deepen beyond the 4200-foot contracted depth. It is located one mile west of Nocona. An independent group is credited with paying $3 cash per acre for leases in forming a block on the east side of the town for a deep test.

The development of the K-M-A Strawn field has been expanded slightly with 10 new locations the past week as compared to 7 the previous week. The deep zone has 55 operations, including 20 tests in process of completion, and 14 drilling with rotary between the two casing points. J. L. Swanner et al's Mrs. B. Parker 1, Block 5, J. McCool Survey, Wichita County wildcat and 2½ miles east of Strawn production, was perpared to deepen after testing small show of oil with nominal gas flow from saturated zone at 3974-96 feet. Top of K-M-A lime was called at 3855 feet, or 37 feet lower structurally than the nearest Strawn producer.

The Texas Company's Wilson 34-A, offsetting lower Strawn producers in the southeast sector of the Hull & Silk field, Archer County, pumped 127 barrels of oil and 6 barrels of water initial after plugging back from water at 4428 feet for 50-quart nitro shot at 4396-4409 feet.

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County—		
Davis et al, Prideaux 1	*	1136
King et al, Montgomery 1, sec 133	..	----
Tide Water Associated, Turbeville 24-A, blk 172	7	1515
Underwood Drl. Co., Campbell 33-B, sec 1378	40	1019
Clay County—		
Bridwell Oil Co., Thornberry 18, blk 5	102	1115
Cooke County—		
Heydrick et al, Franklin 1 (w)	*	2505
Haskell County—		
Browning et al, T. P. Hughes 1 (w)	*	3650
Jack County—		
Benoil Co., Inc., Epperson 1	307	3215
Church et al, McClure 1, sec 2669 (w)	*	1970
Gilmore et al, Martin 3, sec 3328	*	382
Nelson Oil Synd., Henderson 4	285	2812
Henderson 5-B	554	2737
Rogers & Yates, Shown 1	*	700
Wichita County (K-M-A)—		
Omohundro et al, Pace 29	1024	3862
Powers et al, Denny 3	1008	3850
Ross Drl. Co. et al, Overby 1	1200	4076
Shell-Phillips, Griffin 1-a	600	3879
Griffin 2	240	4026
Preston 1-A, sec 20	350	3921
Ven-Mex Oil Co., Big Wichita River 7-A	2280	3811
Wichita County—		
Burns et al, Mitchell 26, lot 7	10	1512
Powers et al, Denny 10-A	20	576
Young County—		
Cable Oil Co., Williams 7	10	677
Dean Bros. & Ports, Webb 1, lot 7	*	741
Italio Pet. Co., Donnell 1, blk 4 (w)	*	3395
Labuzan et al, Webb 2, blk 7	*	730
Veith & Inman, McClatchey 1, sec 1476 (w)	*	950

*Failures; †Junked; ¶Million cu. ft. gas.

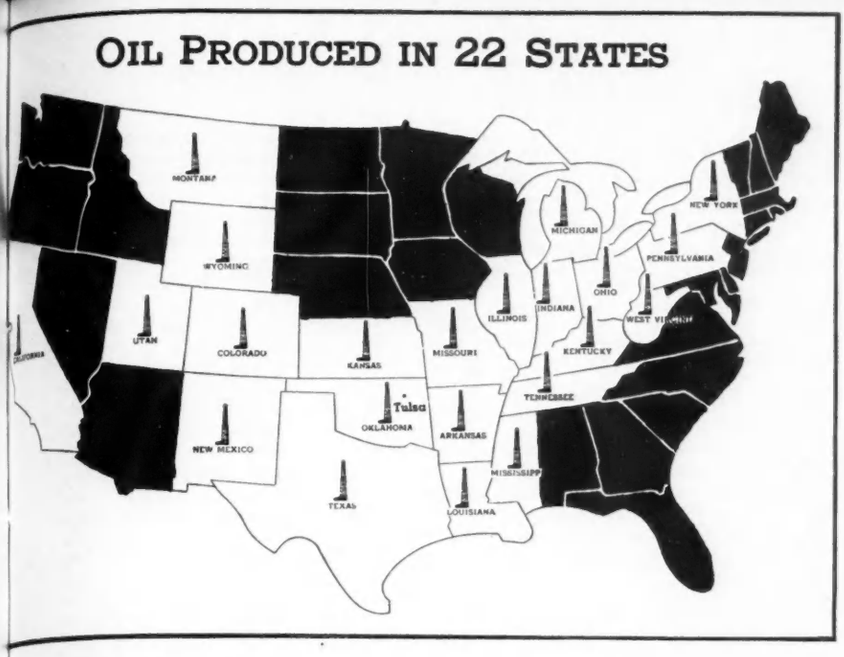
Set Hamman hearing

The Texas Railroad Commission has scheduled a hearing for December 13, at Austin, to determine the most efficient rate of flow for wells in the Hamman field, Matagorda County. The hearing was set as a result of a request from the Hamman Exploration Company.

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Magnolia, Fee 45, lse 244	297	2960
Gray County—		
Drilling & Exploration, Inc., Henry 4	261	3287
Phillips, Saunders 3	229	3028
Hutchinson County—		
Chisum et al, Hodges 4	516	3054
Drilling & Exploration, Inc., Watkins 27	452	3030
Phillips, Cockrell 36	362	3047
Rieger et al, Groves 3	642	3179
Moore County—		
Texoma Nat'l Gas Co., Coon-Sneed 4-M	¶18.7	3170
Sneed 14-SN, sec 22	¶70.6	3064
Wheeler County—		
Gillespie & Sons, McMurty 4	¶8.6	1987

*Failures; †Junked; ¶Million cu. ft. gas.



There Are Many OIL CENTERS *but*

only one OIL CAPITAL

and that is

TULSA

Oil Capital of the World

THERE has always been a tendency for businesses of a type to locate in the same community. An entire industry, like a single business organization, has found it expedient to have a headquarters city. Thus, as Chicago is to meat packing, Detroit to automobiles and Pittsburgh to steel, Tulsa, Oklahoma, for many years has been to the oil industry. Much of the leadership in exploration, production, transportation, refining, marketing and financing, as well as of the technical knowledge of the industry, is headquartered in Tulsa. Almost every producing area has its **oil center,** but so long as oil is produced, Tulsa is likely to remain the **Oil Capital.**

Tulsa — Your Oil Capital, As Seen from Above

West Texas Fields

Bennett and Wasson production brought closer together. Reeves County wildcat has 700 feet of oil in the hole.

Midland, Texas.—Expansion of the Bennett field, Yoakum County, one mile to the southwest and on a trend toward the Wasson area, shortens the intermediate stretch of untested territory to 3½ miles. The linking of the two fields by production is considered probable. John Mabee et al's Willard 1-D, NEc NW Section 741, provided the extension with a natural flow of 320 barrels of oil initial from saturation at 5040-5227 feet, with an elevation of 3556 feet. The well flowed 57 barrels the following 4 hours. The gas volume was estimated at quarter million feet daily through open tubing. A large oil potential could be attained with a nitro shot, according to observers.

The development of leases proved by Mabee et al's producer will undoubtedly be deferred as the above two fields are confronted with pipe line proration, and no new pipe line connections are available for the above or other recent completions in the two fields. Congestion on the six-inch line that serves the upper basin district has developed as predicted a few weeks ago. Mabee and associates are credited with having assumed a continuous drilling contract in the event of commercial production being found on the 480-acre site obtained from the Santa Fe railroad.

Shell Petroleum Corporations' Ruyts 1, recent 1¼ mile southeast extension for the Bennett field, has not recovered the water used for circulation in drilling the oil horizon at 5080-5266 feet after testing for two weeks. Preliminary pumping test indicated a yield of 150 barrels of fluid daily, including 75 percent B. S. and drilling water.

Reeves County renewed its bid for a commercial producer when H. F. Anthony and Lagoki Oil Company's Richards & Shaw 1, near C N ½ NW PSL Section 16, Block 59, 16 miles northwest of Toyah, filled 700 feet with oil from sandy lime at 1625-30 feet. Production is from the Castile zone, which has showed oil in other tests on nearby sites. The county has commanded attention at intervals for more than a score of years with short-lived oil wells in the shallow zones and also the Delaware, and this year registered a small gasser in the latter zone. Oil recovered from shallow pits has been the nearest approach to sustained production. The Shafter Lake area, Andrews County, has been allotted a new wildcat project, while testing operations are underway on apparent oil failures to the east and south. Anderson-Prichard Oil Corporation and Osage Drilling Company have rigged up for University-Humble 1, SEc Section 13, Block 14, situated 2½ miles southwest of the lake and 2 miles north of the Deep Rock field. Large interests that hold leases in the immediate area have donated acreage and cash for the drilling of this test. The Texas Company's University 1-H, NW NE SE, Section 4, ¾-mile south of the lake, logged sulphur water at intervals between 4540-4856 feet, and will be plugged back to try for a gasser in the Yates section, topped at 2790 feet. H. C. Wheeler et al's Farmers State Bank of Carlton 1, C SE SW PSL Section 18, Block A-36, 2 miles southeast of the lake, failed to make a commercial pumper after two-stage acid treatment at 4560-4615 feet, and was drilling at 4650 feet, carrying 400 feet of fluid, 50 percent water.

Harry Adams and Bradley's G. Crain-Ohio 1, Gaines County outpost for the Seminole pool, encountered dry gas near the 3415-foot level, probably from the Yates, topped at 3280 feet, and was drilling at 4025 feet. It is 2 miles east of a northwest extension producer, and 3½ miles north of nearest production in the original pool. Geological markers place this test on the east flank of the axis of the structure that extends northwest from Seminole. Magnolia Petroleum Company and Atlantic Refining, Havemyer-Jenny 1, offsetting production, flowed 252 barrels oil and 6,000,000 feet of gas natural on potential gauge from broken lime at 5033-72 feet. It is one of the largest natural producers in the Seminole area.

The northeast extension sector of the Slaughter field, Hockley County, attained a higher rating when Murchison & Closuit, Inc.'s Slaughter 1, NEc Labor 19, League 37, gauged 18 barrels hourly at the close of a 20-hour flow following 3-stage acid treatment with 10,000 gallons. Oil saturated lime was logged at 4981-5056 feet. It is a southeast offset to Gulf Oil Corporation's Mallet 2, which widened the field 3 miles to the east and the same distance north of nearest production last September after nitro shots and multiple acid treatments. The latter was plugged back from water at 5090 feet, or 1569 feet sub sea to 5070 feet, and flowed 200 barrels of 29.7-gravity oil initial. The performance of the new completion will encourage development of leases between these outposts and the older producing area. However, large scale operations will not materialize until a pipe line connection replaces the current tank truck method of disposing of the oil. A north extension for the field is to be attempted early next year by Sid W. Richardson et al, who have contracted to drill on the H. J. Denton 163.3-acre tract, embracing all of Labor 41, League 40, Maverick County School Lands. Sun Oil Company farmed out the tract for a test.

Production tests slated for Gulf Oil Corporation's Swenson 1-B, northeastern Garza County wildcat, have been delayed to cement off a leak in the 7⅝-inch casing landed at 7400 feet, which is the plugged back depth after failing to develop production in the Ordovician. The Simpson and Ellenberger zones carried water. However, saturated lime zones passed up in the Pennsylvanian while fulfilling depth contract of 8104 feet warranted the running of pipe, which will be perforated opposite the recorded shows.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Emma)—		
Montecito Oil Corp.-Rhodes et al, Cowden-Sinclair 3	130	4224
Andrews County (Means)—		
Humble, J. S. Means 51	835	4512
Crane County (Sand Hills)—		
Humble, J. B. Tubb 21	779	4440
Ector County (Foster)—		
M. B. K. Drl. Co., Foster 2-C	1275	4275
Shell, J. E. Witcher 1-B	1016	4220
Ector County (Goldsmith)—		
Devonian et al, Scharbauer 1-G	*	4225
Gulf, Goldsmith 136	500	4183
Goldsmith 137	544	4197
Ector County (Judkins)—		
Texas Co., Connell 24	166	3650
Ector County (Wildcat)—		
Fields et al, Speer-Owenwood 1	*	4501
Gaines County (Seminole)—		
Magnolia-Atlantic, Havemeyer-Jenny 1	252	5072
Hockley County (Slaughter)—		
The Texas Co., Slaughter 3	260	5003
Howard County—		
Continental, G. O. Chalk 3-D	363	1798
Magnolia, M. H. O'Daniel 4	248	2801
Moore Bros. Corp., O'Daniel 5-A	782	2830
Murko Oil & Roy. Co., Chalk-Conoco 6-A	1463	2920
Jones County—		
Humble, Sam Lewis 1 (w)	*	2695
Sandy Ridge Oil Corp., Steffins 3	320	1889
Pecos County (Wildcat)—		
J. L. Greene-Paul Davis, Shearer-Gulf 1	*	1548
Scurry County—		
Moran et al, F. W. Hardee 1	*	1000
Runnels County (Wildcat)—		
McLean et al, Pflueger 1	*	2057
Upton County (Gulf-McElroy)—		
Gulf, McElroy 182	1233	2994
McElroy 183	566	3035
Upton County (McCamey)—		
Cardinal Oil Co., E. Wooley-Shell 18	*	2186
Edwards-Moore & Donnelly, Burleson-Shell 2	8	2405
Ward County—		
Gulf, Estes 108	662	2685
O'Brien 103	130	2765
Heidrich et al, Bertner 2	510	1847
Humble, University 17-F	553	2740
Luse & Ice, Brictson 1	249	2112
Magnolia, Geo. Sealy 12-46	37	3083
McMann & Garrett, R. Avery 1	*	2295
Winkler County (Kermit)—		
Magnolia, Walton 200	1553	2877
Winkler County (Keystone)—		
Richardson Oils, Jenkins-Conoco 4	350	3365
Winkler County (Scarborough)—		
Gulf, Daugherty 67-N	223	3006
Yoakum County (Wasson)—		
Murchison et al, Willard 4	259	5139
Ohio, Fairman 2	425	5160

*Failures; †Junked; ¶Million cu. ft. gas.

South Central Jones County well produces

Abilene.—South Central Jones County added a new oil pool the past week when Luther Hedrick et al's Akard 1, near center of south line of the G. Martinez Survey No. 137, swabbed 3 barrels of 36-gravity oil hourly at 2054 feet. Production is from 5 feet of oil sand and 3 feet of broken sand. This new strike is 5¾ miles southwest of the Hawley field, and there are no dry holes in the immediate area. Top of the Dothan lime was logged at 1755 feet, with an elevation of 1690 feet.

BARRY SMITH, scout in Kansas for The Texas Company, has been transferred to Chillicothe, Missouri, to check on the leasing play in that area. He is succeeded in Wichita by Ross Wolf.

East Texas Fields

Drilling of inside locations spurts as year end nears. Shelby County well making oil along with distillate flow.

Kilgore, Texas.—The drilling of inside locations in the East Texas field is currently at the highest level attained since mid-August. A steady increase has been recorded for 4 weeks. Scheduled tests reveal that this revival of drilling will continue until the close of the year. A substantial portion of the field work is being carried on by companies and individuals that are bolstering their development charges to be applied against 1938 taxes. This policy has been practiced in former years, and a drilling slump invariably follows.

A sharp decline in operations is anticipated for the fore part of 1939, as the field is confronted with short production weeks, as now applied by the railroad commission, or pipe line proration for an indefinite period. The withdrawal of numerous independent crude buyers within the past 6 months has shifted the well-connection load to the larger interests. Some of the latter are serving more wells than their lines can accommodate with the field restored to 6- or 7-day production basis. This added proration burden greatly prolongs the amortization period of new wells, and discourages drilling on the less desirable leases.

Majors are credited with 22 of the 39 drilling tests listed on the current field report, which accounts for 67 operations, including 18 derricks and rigs; 3 locations; and 7 idle tests. The average well density for the field is 5.1 acres. Majors have drilled one well to 5.9 acres, and the independents have one well to 4.3 acres.

The base allowable for the field on November 28 was 520,446 barrels daily from 25,694 wells, including 19,404 wells that are classed as marginal producers, with a top base allowable of 20 barrels daily, according to commission's records. On the above date there were 53 accounted for dead wells, and 118 wells that have been inactive for a long period.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
Humble, Holt 10 (51.43-ac)	6800	3800
Wooster 13 (74¼-ac)	5000	3735
Ohio, Clay 27 (113.56-ac)	900	3691
Oklahoma-Texas Tr., Neal 5 (1.6-ac)	6400	3773
Kilgore Area—		
Bay Oil Corp., Moore 15 (106.63-ac)	4500	3740
Degener & Co., Belle 2 (2-ac)	1500	3543
Devonian-Gulf, Motley 46 (442.1-ac)	5000	3709
Gulf, Brown 48 (263.52-ac)	7200	3556
Lansberry et al, A. Money 10 (320-ac)	2000	3613
Overton Ref. Co., I&GN 39 (11-ac)	1200	3557
Stanolind, Beall 12 (80.42-ac)	1800	3661
Longview Area—		
Gilcrease Oil Co., Free 10 (35.96-ac)	7000	3610
Humble, Edwards 47 (271.6-ac)	4000	3687
Magnolia, Nicholson 9 (49.16-ac)	5500	3679
Shell, Akin 21 (100-ac)	9000	3663
Burnside 30 (160-ac)	7800	3613
Sinclair-Prairie, Akin 24-B (100-ac)	9000	3650
Moncrief 61 (307.7-ac)	9200	3733
Marion (Rodessa-Jefferson)—		
Killingsworth-Bander, Jefferson & N. W. R. R. 2, Smith sur	136	6043
Texas Co., Braden 2, Fitzgerald sur	1224	6031
Panola (Wildcat)—		
McDonald & Campbell, J. F. Nail 1, McCready sur	*	2350
Freestone County (Cayuga)—		
Champlin-Bass & W. L. Pickens, Harwell 1 (50-ac)	2500	4016
Henderson County (Flag Lake)—		
Davis et al, Tarkington 1 (39-ac)	195	3023
Titus County (Talco)—		
Humble, Clark-Humble 1 (160-ac)	*	860
Van Zandt County (Van)—		
Van Zandt Synd., Coker 4	*	1284
Wildcats		
Falls County—		
Kincaid Prod. Co., Davis 1	*	914
Freestone County—		
J. L. Collins-Wm. Steward, Hill 1 (150-ac)	*	5285
Houston County—		
Mayo et al, Lively 1 (217-ac)	*	5895
McLennan County—		
Steele et al, Cherry 1	*	1300
Red River County—		
Daniels et al, Gaston 1	*	1109
Whitehead et al, Ringwald 1 (56-ac)	*	630

*Failures; †Junked; ¶Million cu. ft. gas.

East Texas to discuss plug-back program

The problem of shutting off salt water in oil producing wells in the East Texas field has assumed such proportions within the past several months that the executive committee of the East Texas Chapter of the A.P.I. decided to devote the entire meeting for December 6, 1938, to a full discussion of the subject. The meeting will be held in the high school auditorium at Kilgore at 8:00 p.m. on Tuesday, December 6, 1938. The public is invited to attend the meeting and take part in the discussion.

Colonel E. O. Thompson, of the railroad commission, has informed the local committee that he will be present with several of the commission's engineers. Many of the oil companies have already signified their intention of having representatives at the meeting prepared to discuss the success of plug-back work by them in the field. It is anticipated that a full discussion of the matter will be had and that the experience of some operators will prove of value to others in the field.

C. P. Parsons, vice president of Halliburton Oil Well Cementing Company, will present a paper entitled "Squeezing Cement Against Permeable Formations" and will be followed by a discussion of the plug-back work in the East Texas field by Phil Montgomery, engineer for Halliburton Oil Well Cementing Company in the field. Montgomery has had a wide experience in East Texas and is fully qualified to discuss the problem from first hand information. P. E. Fitzgerald, of Dowell, Inc., from Tulsa, Oklahoma, will present a short discussion of the use of a formation plug used by his company.

Prior to the meeting at the high school the usual A.P.I. dinner will be held at the Kilgore hotel at 6:15 p.m. Tickets for this dinner are available at the office of the secretary, Box 56, Kilgore, or reservations can be made at the Kilgore Hotel Coffee Shop.

Shelby County well making oil and distillate

Shreveport.—Pundt and associates' (Redditt and Gray) Pickering 1, W. M. Snider Survey, Shelby County, Texas, at Joaquin, was flowing 15 to 20 barrels of crude oil and distillate hourly through ¼-inch tubing choke Thursday after being turned through separator into tanks.

The indication of a possible oil well in this test came after casing was perforated with 20 shots in Glen Rose lime from 5053-60 feet. Total depth is 5084 feet, with 7-inch casing set on bottom. The yield was a mixture of oil and distillate and the well was also making estimated seven million cubic feet of gas daily. The Glen Rose lime horizon was reported from 4865 to 5070 feet. Location of this test is 1000 feet southwest of the nearest of three Glen Rose gas-distillate wells. Should it be an oil well it would be the first in the Joaquin field where Portex Oil Company during last week started operations at a re-cycling plant using gas from the three wells and returning the processed gas into the wells.

East Texas salt water disposal is approved

Sun Oil Company has been granted its permit to gather salt water from several of its East Texas leases and turn the water into its No. 38 H. A. Pace "B" in the Vargas Survey, Smith County. The operation authorized is that which was outlined in THE OIL WEEKLY of November 28.

In the order issued by the Commission, it was pointed out that "Evidence was also presented to the effect that the quantity of salt water produced from the Pace lease was insufficient to give the desired information on the operation of the injection experiment, but that if the salt water produced from other leases was allowed to be used, together with the salt water produced from the H. A. Pace 'B' lease, that it would be possible to obtain more information in regard to the amount of salt water the injection well would return to the Woodbine Sand, as well as the conditions necessary to effect the injection of increased amounts of water."

Starts in Texas jump to 267

The Texas Railroad Commission last week approved permits for drilling 267 new wells in Texas, 67 more than were allowed the week before.

Operators in the East Texas field were allowed 50 locations, including 25 in Rusk, 20 in Gregg, three in Upshur and two in Smith County. There were 14 locations reported from the remainder of the East Central Texas area.

Permits for drilling 92 wells in the

Gulf Coast District were approved, including 22 in Harris, 14 in Nueces and 13 in San Patricio County. Operators in Southwest Texas reported 40 new locations with 10 in Duval County.

The commission approved permits for 29 new wells in West Texas, while six were allowed in West Central Texas.

North Texas operators reported 26 locations with 11 in Wichita County, while 10 locations were reported from the Panhandle.

E. L. Smith consolidation with Lion completed

Filing of a certificate with Arkansas Secretary of State C. G. Hall at Little Rock last week marked completion of consolidation of E. L. Smith Oil Company, incorporated in Delaware with authorized capital of $10,000,000, with Lion Oil Refining Company, El Dorado, Arkansas.

The Lion company will issue one share of its common stock in exchange for each ten shares of Smith common. Capital of the former company is represented by 1,000,000 shares of $10 par stock, while Lion capital is represented by 1,000,000 shares of no par common. Negotiations for purchase of the Smith company were completed some time ago by T. H. Barton, president of the Lion company.

Louisiana permits

Shreveport.—Thirty-nine drilling permits were authorized last week by the Louisiana Conservation Commission of which 19 were in North Louisiana divided among the following parishes: Caddo, 12; LaSalle, 2; Sabine, 2; and Webster, 3.

The 20 in South Louisiana were in the following parishes: Acadia, 2; Calcasieu, 1; Cameron, 3; East Baton Rouge, 1; Evangeline, 2; Iberia, 1; Iberville, 1; Jefferson Davis, 1; La Fourche, 3; Plaquemines, 1; St. Charles, 1; St. Mary, 1; and Terrebonne, 2.

Fourth pool found on Duval Ranch lands

Laredo.—Magnolia Petroleum Company's Duval County Ranch Company holdings are providing a number of new producing spots. Fourth pool of the year by this company was evidenced last week when casing was being set in Duval County Ranch Company 1, one mile southeast of the Moca field in western Duval County. The test, in League 101, found sand, likely Cole, at 698-704 feet and casing was set.

Several days prior, the company completed Duval County Ranch Company 2, Section 289, 10 miles southwest of Freer, for 50 barrels per day on pump to open the Cedro Hill field. Sand was logged at 1445-51 feet, being in the Cole zone.

M .M. Miller et al's Miller 1, about ½ miles southwest of the original Sweden field of Duval County, cored the Government Wells sand at 4893-99 feet, and is completing. A drill-stem test at 4879-99 feet recovered 1520 feet of pipe line oil, 200 pounds working pressure in 20 minutes through 3/8-inch chokes, top and bottom. It is one mile south of a wildcat in the same sand, which recently was drilled by the Hiawatha Oil & Gas Company. That well had a poor sand section and made a small amount of crude.

Southwest Texas Fields

Lower coast finishing record year of wildcatting success. New fields in Kleberg, Nueces; old production extended.

Corpus Christi.—Adding more new producing areas during the week, South Texas Gulf Coast bids for a record year in wildcatting successes. Although a number of unproven operations declined in 1938 as compared with 1937, the success ratio has shown a material increase. The Vicksburg trend, new to this area, was closely rivaling the Frio area in new reserves.

New fields were added in Kleberg and Nueces counties, while material extensions to present fields plus new sands were uncovered in Jackson, Refugio, and Jim Wells counties. These new producing areas further indicate that 1939 will see the lower Gulf Coast back in its 1937 drilling stride.

Pure Oil Company and Superior Oil Corporation's State 1, one mile west of North Bird Islands and in Kleberg County, has been completed as a gasser to open the first completely marine producing area in South Texas. The well is located several miles from the mainland and is 10 miles south of Flour Bluff field. Drilled on an island, it was carried to 9636 feet, plugged back and completed for an estimated 75,000,000 cubic feet of dry gas per day through perforations at 7210-30 feet, 7239-56 feet and 7269-78 feet. Working pressure was 2700 pounds. A second well will be commenced in the near future.

Seaboard Oil Corporation's Wilson 1 was dead December 1 after blowing out November 26, cratering and burning. The crater swallowed the rig and equipment, plus two automobiles and was in such a condition that control appeared almost impossible. It finally choked off and was causing little or no worry. The test, located in Block 9, Wright Lands Subdivision and eight miles northwest of Robstown in Nueces County, was coring at 6541 feet when it went out of control. A second well will be drilled in the immediate vicinity. This test had cored several sands showing gas and distillate, but while burning indicated that it was making some crude.

About 3000 feet to the southeast, and also on the Riverside prospect, Stanolind Oil & Gas Company's Clark 1, Lot 45, was drilling below 6635 feet. It has had several showings of gas and distillate at upper levels.

Texas will have its first 13,000-foot operation over the week-end if progress continues in Union Producing Company's Minnie Brown 1, at Agua Dulce. The well was at 12,935 feet late in the week and still in heaving shale.

Another test along the coast had passed the 10,000-foot level and was headed for 13,000 feet or deeper. It is Hiawatha Oil & Gas Company's Roemer 1 near Seadrift in Calhoun County. The well was currently reported to be at 10,250 feet and making rapid progress.

Jackson County's recently discovered Francitas distillate area, became a crude producer with Wynne Crosby Drilling Company's John Broughton 1, 6300 feet northeast of production, finding a new sand. The test was flowing approximately 260 barrels of 42.7 gravity pipe line oil per day through 3/16-inch choke under pressures of 1820 pounds on tubing and 2050 pounds on casing. It was bottomed at 7414 feet with flow coming from perforations 7393-97 feet with 16 shots.

Barnsdall Oil Company's G. Keeran 1, second well by the company in the extension area at Keeran, Victoria County, flowed 98 barrels of oil per day through 6/64-inch choke under pressures of 1050 pounds on tubing and 1100 pounds on casing. It had been drilled to 7850 feet, but plugged back and was finished through perforations at 6996-97 feet.

Hewitt & Dougherty were commencing a second well in the southwest extension area to LaRosa, Refugio County. The first well, Rooke 1, 4000 feet southwest of production, flowed several hundred barrels of oil per day through 3/16-inch choke from sand section 5888-5903 feet, perforations having been made at 5895-5800 feet.

McCampbell, San Patricio and Aransas counties, enhanced in importance by its recent southwest extension, was receiving a number of producers in the 7100-foot zone. These wells have been flowing from 350 to 500 barrels per day through 3/16-inch choke. About 30 locations have been tentatively staked in the Aransas Pass townsite in anticipation of the extension of the field into that area.

Jim Wells County, likewise, provided its quota of new discoveries. Although making a large volume of gas, Tom Graham and Harry Mosser have opened an important Vicksburg producing area two miles northeast of Alice deep pay. Bankers Mortgage Company 1 flowed 60 barrels of fluid per day through 3/32-inch choke with pressures of 1580 pounds on tubing and 1920 pounds on casing. The fluid was increasing and the pressure declining. The test cored oil sand with high gas content from 5286-5339 feet and is bottomed at 5402 feet with casing on bottom. Production is coming from perforations at 5329-33 feet. The thickness of the sand section is encouraging from a high recovery point of view if saturation increases on the flank of the structure. Much conjecture has been displayed as to the possibilities of this being a completely separate area from the main Alice field.

Magnolia Petroleum Company definitely established production in the 5600-foot sand at East Premont with A. A. Seeligson 10, one-fourth mile west of production. The test, after making a producer at several upper levels, was plugged back and perfo-

rated at 5626-32 feet with 24 shots. It flowed 85.16 barrels per day through ⅜-inch choke under pressures of 1975 pounds on tubing and 2125 pounds on casing.

SOUTH TEXAS Completions

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Caldwell County—		
Artz, Campbell 2, Walnut Creek...	*	1900
Dye, Voight 1, 4½ mi e McMahan townsite, Watkins sur	*	2747
Ellmag, Dickinson 3, Salt Flats....	90	2724
Rio Bravo, Merriwether 19-L, Luling	45	2068
Robinson & Coffield, Young 4-C, Branyon	71	2220
Young 1-E, Branyon	104	2339
Frio County—		
Humble, Houston (McLean) 1, Shattel district, sur 162.....	*	5302
Guadalupe County—		
Wellington, Mattke 1, New Berlin district, Smith sur	*	1849
Medina County—		
Murrell, Fee 5, Chicon Lake.....	*	398
Williamson County—		
Coffey, Fuchs 1, 2 mi ne Thrall, Bradley sur	*	1125
Coffield & Taylor, Galler 1, 6 mi ne Taylor, sur 7	*	810
CORPUS CHRISTI DISTRICT		
Aransas County—		
Atlantic, Long 1, McCampbell.....	650	7220
McAlester, Hoffman-Dushorne 1, McCampbell (perf 6884-88)	750	7243
Bee County—		
Dirks, Robertson 1-A, 6 mi sw Mineral, Morrow sur	*	4314
Jim Wells County—		
Graham & Mosser, Bankers 1, Alice district, La Vaca gr, (perf 5329-33)	600	5402
Howell, Stillwell 3, Alice (perf in 5200 ft snd)	500	5570
Magnolia, Seeligson 10, E. Premont (perf 5626-32 ft)	350	6602
Pratt & Browning, Stillwell 2, Alice (perf 5290-5301)	350	5571
Kleberg County—		
Pure, State 1, 1 mi w North Bird Islands, tr 522 (perf between 7210 and 7278 ft)	¶75	9636
Live Oak County—		
Simmons, McGriff 4-B, Oakville...	100	2139
Nueces County—		
Andrade, Dunn 5, Turkey Creek....	600	4123
Heep & Refugio, Rogers 4, S. Clara Driscoll	375	5458
Killam, Ellick 10, Clara Driscoll...	95	5280
Reed & Cox, Houser 1, S. Clara Driscoll	275	5480
Seaboard, Wilson 1, 8 mi nw Robstown, Herrera gr .....crater		6541
Sun, McCann 4, Luby	600	5061
Texas, Flinn 3, S. Clara Driscoll...	¶1	5435
Refugio County—		
Copano, O'Connor 24-B, Tomoconnor	1350	5924
O'Connor 39-B, Tomoconnor 1350		5883
San Patricio County—		
Grote & Corgey, McCampbell 1, McCampbell	900	7160
Plymouth, Cole 2-G, E. White Point	500	5670
Smith, Barfoot 1, McCampbell....	975	7136
Victoria County —		
Barnsdall, Keeran 2, Keeran.....	425	7850
Gulf, Schultz 6, Heyser.....	500	5490
Wellington, Boothe 1, 2½ mi sw Fordtran field	*	4320
LAREDO DISTRICT		
Duval County—		
Continental, Driscoll 29-A, Driscoll	400	3371
Cox & Hamon & Gorman-Yoakam, Casas 3, Hoffman	*	lcn.
Cuellar 53, Hoffman	65	2596
Eagle Hill & Butler, Foster 11-B, Eagle Hill	65	1500
Frohnhoefer, Fitzsimmons 1-A, Fitzsimmons	*	lcn.
Mew 1, Fitzsimmons	*	lcn.
Hiawatha, Parr 19, N. Sweden....	425	4740
Humble, Rossi 8-B, N. Sweden.....	150	5351
Magnolia, Duval Ranch 2, sec 189-Cedro Hill field	50	1451
Magnolia, Well 19, Hoffman.....	29	2792
Porter & Wheelock & Collins, Driscoll 7, Fitzsimmons	*	4665
Jim Hogg County—		
Darby, Holbein B-8, Las Animas..	*	lcn.
McMullen County—		
Ezzell, Fee 25, Ezzell	281	1557
Jones, Ezzell 40, Ezzell	145	1558
Ezzell 42, Ezzell	62	1570
Ezzell 43, Ezzell	276	1540
Starr County—		
Dodd, Wood 7, S. Ricaby.....	325	1741
Webb County—		
Killam, Bruni 2 (1) 1¼ mi w Albercas field, Arriba gr	*	2252
Spear, Benavides 1, 1 mi w Cole-O'Hern field, Arispe gr	*	3596

*Failures; †Junked; ¶Million cu. ft. gas.

Sun field extension flows oil from Vicksburg

Mission.—Production near the top in the Vicksburg formation was established in the new Sun field, Starr County, when Circle Oil Company's S. Olivares 1, ¾-mile north of production, flowed several barrels of oil per hour from perforations 5117-19 feet. The flow was through ⅛-inch choke with pressures of 1750 pounds on tubing and 1500 pounds on casing. This operation cored the several field sands and was carried ahead to open the new pay. The sand was logged at 5115½-35 feet.

Sun Oil Company is actively developing this new area. While only two wells have been completed by the company, three rigs have been moved in, including two on outpost loactions.

Jim Hogg County's Kelsey pool, several miles to the north, was not looking as good with the second producer, 3732 feet north of the discovery, running about 60 feet low structurally. It was making about 150 barrels of water and a like amount of oil through perforations at 4730-35 feet. It likely will be reworked.

R. E. Harding et al's E. M. Card 1, Block 8, just east of the McAllen townsite in Hidalgo County, was making another production test. The newest is in sand at 6510-40 feet. It previously flowed gas and distillate through perforations in sands at 6920-55 feet and 7402-98 feet. If productive, it will be

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CASE OIL FIELD ENGINES

the third new sand opened in the field by this well.

Phillips Petroleum Company opened a Vicksburg distillate sand at Samfordyce, Hidalgo County, when Flores 1 flowed several barrels of distillate per hour with a large volume of gas through 7/16-inch choke. The working pressure was 3050 pounds. This test has been carried to 9708 feet, plugged back and set 5½-inch liner at 5950 feet, perforations being 5840-5900 feet, opposite a sand series.

Union Sulphur Company was recovering 35 barrels of 61-gravity distillate per day along with 3,000,000 cubic feet of gas from American 11, deep test at Mercedes, Hidalgo County. The well had made 25 production tests above 9618 feet, finding gas and distillate in a number of new zones. It was flowing through ⅜-inch choke under pressures of 1100 pounds on tubing and 1300 pounds on casing after perforations had been made at 7430-40 feet.

West Beaumont field allowable raised

The West Beaumont field, Chambers County, has had an allowable increase of 1236 barrels daily, effective November 17. The raise was ordered to enable operators to supply a new foreign market, according to the commission's order.

The field allowable from November 17 was raised to 2992 barrels daily, and the commission exempted the field from the Saturday and Sunday shutdown orders on November 19, 20, 26 and 27.

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Anahuac—		
Humble, Middleton 36	522	7080
Batson—		
Atlantic, Cruse 3	335	5465
Cedar Point—		
Standard of Texas, State 3-118	546	6005
Cheek—		
Humble, Todd 1	651	7719
Danbury—		
J. R. Atkinson et al, Blakley-Winston 1	*	2325
Dickinson—		
Pure, Shelor A-5	265	8112
Eureka—		
Jack Frazier, Hogg Brothers 2	236	7762
Fairbanks—		
Amerada-Stanolind, Berryman 2	126	6850
Chacey 1	136	6857
Union Prod. Co., Warneke 1	520	6840
Whitehead & Rash 1	387	6852
Williams & Thompson, Deacon 2	325	6882
Friendswood—		
Humble, Grey 16	607	6055
Hastings—		
Humble, Alexander 10	603	5900
Hitchcock—		
Maco Stewart, Fee 9	116	5157
Phillips Pet. and Wittjens, Coon 1	*	6652
League City—		
H. C. Cockburn, Haardt 1	*	9019
Lochridge—		
Shell, Ramsey B-6	*	8530
Markham—		
Thompson-Newman, Kountze 1	*	4040
North Markham—		
Ohio Oil Co., Carlson 1	168	7708
Sandy Point—		
Stanolind, Sharp 1	*	8943
Seabreeze—		
Sun, Acom 4	202	8456
South Bay City—		
Hamman Exploration Co., Foote 2	469	9244
South Cotton Lake—		
Humble, Lawrence B-2	528	6480
Spurger—		
Republic, Hurd 14	566	7740

Texas Gulf Coast

Mount Houston well is flowing oil, cleaning hole slowly. Second try in League City area is too wide and a failure.

Houston. — Mt. Houston prospect became productive December 2 when Jack Frazier brought in Mrs. L. Griffith 1, Adams Smith survey, Harris County, flowing into burning pits ungauged. It was flowing a small stream of fluid about 25 percent oil and 75 percent wash water, no salt water, from Frio sand at 4077½ feet. The well came in slowly and it will take several days for it to clean itself. Hole was drilled to 8350 feet and 16 side wall cores were taken from 4074 to 4096 feet. Five and half-inch casing set at 4100 feet was perforated with 24 shots from 4073½ to 4077½ feet. A drill stem test was attempted but the packer slipped. A second drill stem test was made but the perforations became sanded up and these were washed out. The hole then was washed for production test.

The first failure for the League City field, Galveston County, is H. C. Cockburn's O. H. Haardt 1, S. F. Austin Survey. It is about 2½ miles north and slightly west of the discovery well, and drilled to 9019 feet and electric log run. No oil sands of importance were cored, but a large body of salt water sand was shown.

A half mile west of the discovery well at League City, Geo. Echols has run electric log in M. Stewart 1, Perry & Austin Survey, after missing several cores at 9096 feet. The core bit was also lost in the bottom of the hole. A sand showing oil was cored from 8694 to 8705 feet and a sand with an oil show but a salty taste from 8705 to 8717 feet. A sandy shale formation with another oil show was cored at 9068 to 9078 feet and cores from 9078 to the bottom were lost. This test is reported to be slightly higher than the discovery well.

East of the discovery well at League City, Midwest Royalty Company's M. Stewart 1-A was coring below 8822 feet after coring broken formations with shows of oil up the hole. Shows of oil were encountered at 8582 to 8591 feet; 8625 to 8635 feet; 8635 to 8647 feet; gas sand at 8673 to 8682 feet; sand showing oil 8706 to 8715 feet and the core from 8715 to 8724 feet was not recovered.

At Green's Lake, Galveston County, Sun Oil Company's Houston Farms 1, workover, swabbed salt water last week after casing was perforated with 12 shots from 6968 to 6975 feet. The hole is bottomed at 6980 feet in sand showing oil, topped at 6965 feet. Five and half-inch casing was set at 6980 feet. Perforations will be squeezed and another production test made.

Company, Well and Location	Bbls. Init. Prod.	Depth
West Columbia—		
General Crude, Campbell Estate 1, Flank test	*	6930
Mike Hogg, Fee 4	82	5420
Withers—		
Smith & McDannald, Broussard 1	126	5545
Texas Co., Broussard 1	127	5547
Brazoria County—		
Humble, Tuttle 1, Iowa Colony area, H.T.&B. sur, No. 67	*	8221
Harris County—		
J. Frazier & Bunte, Hornberger 1, Highlands area, Sessunins sur	*	5527
Jefferson County—		
British American-Merit Oil Co., Gladys City 1, w of Spindletop, J. A. Veatch sur	*	7382
Montgomery County—		
Housh & Thompson, Clary 1, Northwest Conroe area, W. S. Allen sur	¶44	4739
Wharton County—		
Crown Central, Babcock 1, n of Louise, S. P. Middleton sur	*	5517

*Failures; †Junked; ¶Million cu. ft. gas.

Montgomery County Gasser

Four miles northwest of Conroe, Montgomery County, Housh & Thompson have completed Clary 1, W. S. Allen Survey, as a gas well. The well came in flowing oil from Cockfield sands but later salt water came in. The well was tested through various size chokes and the fluid content decreased. After being shut in and opened it made an estimated 44,000,000 cubic feet of gas on an open flow test. No fluid was shown. The well was completed at 4739 feet.

On a potential test Humble Oil & Refining Company's Todd 1, west of production at Cheek, Jefferson County, made 651 barrels of 36.5 gravity oil in 24 hours through ¼-inch choke from Frio sand at 7719 feet. Tubing pressure was 1150 pounds and casing pressure 1250 pounds. No salt water was shown.

About 1800 feet west of production at Spindletop field, Jefferson County, British American Oil Company and Merit Oil Company's Gladys City 1, J. A. Veatch Survey, was abandoned at 3528 feet after plugging back from 7382 feet. A test at 3508 feet showed 10 stands of salt water.

Another Iowa Colony Failure

Iowa Colony, Brazoria County, received another set back last week when Humble Oil & Refining Company abandoned Tuttle 1, one mile southeast of Normandie Oil Company's Ramsey 1, which was abandoned at 6911 feet some time ago. Tuttle 1, HB&T Section 67 was abandoned at 8221 feet after coring salt water sands in Frio formation. This wildcat attracted considerable attention as it was running about 400 feet higher on structure than the 6911-foot dry hole.

North of production at Hastings, Brazoria County, H. F. Alexander's Stiener-Blumer 1, HB&T Section 28, recovered salt water on a test last week. It logged a sand below the water level for Hastings and was drilled to 6223 feet. Sand showing oil was cored from 6181 to 6197 feet. Oil and salt water sand was cored from 6199 to 6213 feet and a sandy shale formation with a show of oil was cored from 6213 to 6223 feet. Seven-inch casing was set on bottom and perforated with 38 shots from 6171 to 6178 feet. The hole was swabbed and showed a little oil and salt water. The well is shut down waiting on orders.

A quarter-mile south of production at

Sandy Point, Brazoria County, Stanolind Oil & Gas Company abandoned Sharp 1, C. S. Gorbet Survey, at 8943 feet after coring salt water sand in the Frio. This is one of the deepest wells ever drilled in the field.

On the southeast flank of West Columbia, Brazoria County, General Crude Oil Company abandoned Campbell 1, J. H. Bell Survey, at 6930 feet after coring salt water sands.

Another failure was reported on the Highland prospect in Harris County last week by Jack Frazier and Bunte. Hornberger 1, B. N. Sessuins Survey, was abandoned at 5526 feet in shale. Salt water sand was encountered at 5205 feet. Operators are preparing to drill Carter Investment Company 1 in the same area.

At Pearland, Harris County, Carroll Oil Company is shut down at 7007 feet in Norma Means 1, T. J. Green Survey, while electrical log is studied. After coring salt water sands in the upper Frio formation the operators decided to deepen. Salt water and dry sands were cored in the lower portion of the Frio section. These sands were cored from 5930 to 5936 feet, 5948 to 5958 feet, 5958 to 5965 feet and from 5996 to 6006 feet.

Two at Fairbanks

Two of the best producers completed on the northeast side at Fairbanks, Harris County, are Union Producing Company's Warneka 1 and Whitehead & Rash 1. Warneka 1 flowed 520 barrels of 37.4 gravity oil in 24 hours through a ¼-inch choke. Tubing pressure was 1120 pounds and casing pressure 1220 pounds. The well was perforated with 12 shots from 6838 to 6840 feet. Whitehead & Rash 1 flowed 387 barrels daily after casing was perforated from 6845 to 6848 feet.

On the south flank of Fairbanks, Amerada Petroleum Corporation and Stanolind Oil & Gas Company are completing Munger 1. Casing has been perforated in sand showing oil with 18 shots from 6832 to 6839 feet. The well is flowing into burning pits.

On the west side of Fairbanks, Amerada Petroleum Corporation and Stanolind Oil & Gas Company are making another production test on Peters 2, W. K. Hamblin survey. Last week the well was perforated with 19 shots from 6963 to 6968 feet and came in flowing 15 barrels of fluid per hour, 95 percent salt water and five percent oil. Tubing pressure was 1300 pounds and casing pressure was 2550 pounds. The perforations were squeezed with cement and the hole has been perforated higher.

North Markham, Matagorda County, was extended north last week when Ohio Oil Company completed the second well in the area. Carlson 1 drilled to 8450 feet in shale and plugged back and completed after casing was perforated with 19 holes from 7702 to 7708 feet. It flowed 7 barrels per hour through a ⅛-inch choke. Tubing pressure was 1500 pounds and casing pressure 2400 pounds.

At McCroskey, Matagorda County, Pierce Estate's Fee A-6, D. Fenton Survey, was plugged back from 7531 to 6800 feet last week and operators plan to redrill and test sands from 7181 to 7191 feet which showed up on an electrical log. The well cored broken formations with odors of oil and gas from 7121 to 7125 feet, from 7148 to 7153 feet and from 7163 to 7167 feet.

South of production at Cedar Point, in Galveston Bay, Chambers County, Standard Oil Company of Texas completed State 3-118 last week flowing 546 barrels of pipe line oil daily through a ¼-inch choke with a tubing pressure of 1000 pounds. State 3-118 topped the oil sand at 5975 feet and is bottomed at 6005 feet. Seven-inch casing was set at 5974 feet.

Northeast of Anahuac, Chambers County, Louis D. Roberts et al have announced location for C. H. Lang 1, 330 feet each way out of NEc T&NO Section 35.

Spurger Extended

Spurger was extended one location west last week when Republic Production Company completed Hurd 14, N. Hurd Survey, Tyler County. After drilling to 7740 feet the hole was plugged back and was perforated with 35 shots from 7600 to 7612 feet. On a potential test it made 566 barrels in 24 hours through a ¼-inch choke, tubing pressure was 1350 pounds and casing pressure 1600 pounds.

North of Louise in Wharton County, Crown Central Petroleum Company abandoned Babcock 1, S. P. Middleton Survey, at 5517 feet after making a drill-stem test from 4431 to 4442 feet showed a slight blow of gas, no pressure and 13 joints of drilling mud after the testing tool had slipped.

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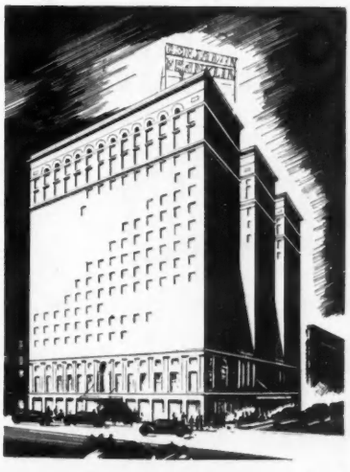

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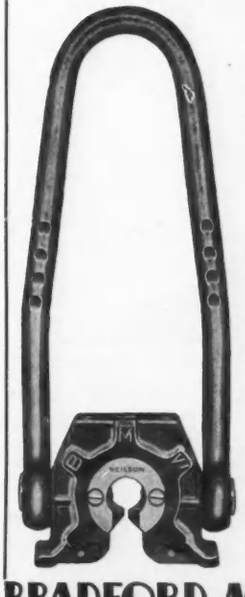

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South Louisiana

Lake Verret, St. Martin Parish, has some kind of oil well. Production at Bancroft is being extended half mile east.

Lake Charles.—Shell Petroleum Corporation is attempting to open a new oil field with Burdin 1 at Lake Verret in St. Martin Parish. Five-inch casing has been set at 8100 feet and perforated with 12 shots from 8017 to 8020 feet. Packer was set at 8010 feet and a 3-minute drill-stem test made a slight blow of gas and three stands of gas-cut mud with a show of oil. No pressures were shown. The hole is being cleaned out for another drill-stem test. Burdin 1 indicated it would produce oil when a drill-stem test was made at the above horizon while drilling to 9833 feet. A drill-stem test of the 8017-foot horizon showed 39-gravity oil and salt water.

East of production, about a half mile, at Bancroft, Beauregard Parish, Geo. E. Lilley is preparing to complete Rice 1 in Cockfield sand at 7280 feet. If the well is a producer it will bring the second operator into the field heretofore operated solely by Republic Production Company. Rice 1 cored a gas sand at 7190 feet and oil sand at 7280 feet. Casing will be set on top of the oil sand.

Republic Production Company has another well at completion stages at Bancroft. Columbia Land & Timber Company 3 cored oil sand at 7292 feet and is setting seven-inch casing.

A half mile east of the discovery well at North Crowley, Acadia Parish, Atlantic Refining Company's Klumpp 2 was drilling below the producing horizon last week. The hole is bottomed at 8001 feet in shale and logged a gas sand around the producing horizon.

At Jennings, Acadia Parish, Superior Oil Company made a test in Leckelt 15 in a deep sand and recovered only gas. It is being plugged back and will be completed in the Heywood sand. The was drilled to 8739 feet in shale and 5-inch casing set. It was perforated from 7895 to 7910 feet and a drill-stem test in 30 minutes showed 1500 pounds pressure through a ¼- and ⅜-inch choke. Shut in pressure was 3000 pounds and bottom-hole pressure 3300 pounds.

The first well at Villa Platte, Evangeline Parish, to produce from the Haas sand is Continental Oil Company's A. Tate 1. Casing was perforated from 8887 to 8905 feet with 48 shots and the well came in flowing 135 barrels in 14 hours through 3/16-inch choke, tubing pressure 2600 pounds and casing pressure 2650 pounds. The well showed salt water in the 9100-foot horizon.

Northeast of production at Lafitte, Carter, Perrin & Bryan's Adams 1, Section 29-8s-11e, was shut down last week at 10,210 feet after failing to find the producing sand. This is the first 10,000-foot dry hole drilled in the area where The Texas Company has drilled over two dozen producers. The Texas Company may help the operators carry Adams 1 deeper.

The Texas Company is testing a new horizon at Caillou Island, Terrebonne Parish. State Terrebonne Bay 5 was perforated from 6470 to 6497 feet with 180 shots and a drill-stem test through ¼-inch choke in 11 minutes started flowing, pressure was 1500 pounds. The crew is coming out of the hole with the testing tool.

Superior Oil Company has made location for a core test north of production at Creole, Cameron Parish. Pradia

SOUTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Charenton—		
Pan American, Veeder 10.....	97	2455
Villa Platte—		
Continental, A. Tate 1	240	8905
West Hackberry—		
Superior, Benson-Vincent 4.....	250	6668

*Failures; †Junked; ¶Million cu. ft. gas.

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1 is 900 feet north and 690 feet west of SEc NW 4-15s-8w.

Superior Oil Company is preparing to complete another well at Creole, one mile offshore of Cameron Parish in Gulf of Mexico. State 3, 30 feet north of State 1, set 7-inch casing at 5244 feet after coring oil sands from 5252 to 5267 feet. This hole originally was drilled to 5249 feet and plugged back and sidetracked at 1245 feet.

On the southwest flank of West Hackberry, Cameron Parish, Superior Oil Company completed Benson-Vincent 4 for 260 barrels of 38.8 gravity oil daily through a 11/64-inch choke from 6668 feet. Top of the oil sand was cored at 6595 feet and 7-inch casing was set at 6597 feet.

In Avoyelles Parish, Eola prospect, S. Richardson has made location for Haas 1, 1300 feet west and 890 feet south of NEc 7-2s-3e.

Southwest of the discovery well at Chacahoula, Lafourche Parish, Sun Oil Company's Dibert, Stark and Brown 3 cored oil sand last week from 7264 to 7269 feet and set 7-inch casing for a production test. An oil show was also logged from 7255 to 7264 feet.

On the Golden Meadows prospect, Lafourche Parish, The Texas Company is cementing a leak in casing around 3500 feet after making a drill-stem test down the hole last week in LaTerre Company 1. Casing was perforated from 9015 to 9016 feet and salt water was shown. The hole was again perforated from 8850 to 8870 feet and a 15-minute drill-stem test showed 5 stands of mud, 3 stands of salt water and mud and 48 stands of salt water.

On the west flank of English Bayou, Calcasieu Parish, Fohs Oil Company is preparing to complete M. P. Irwin 1 as a gas and distillate producer. Casing was perforated from 6945 to 6949 feet. A drill-stem test at 7032 feet showed 100 feet of gas-cut mud.

Geophysical crews busy in southeastern area

Jackson, Miss.—Sun Oil Company is the most active company in South Mississippi from a geophysical exploration standpoint. Besides having a unit in Pike County, this company also has a gravimeter unit working in Amite County, has a torsion balance unit working in northeast Hancock County and northwest Harrison County, and also a unit in Stone County south of Wiggins. Ohio Oil Company has a torsion balance unit working in northwest Jackson County. Union Producing Company's reflection seismograph unit is working in the north part of Hinds and Rankin counties.

Seismic Exploration, Incorporated, has moved a unit from Jackson to Maridian. It will work westward from the latter place to Forest, Scott County, a distance of about 60 miles.

Union Producing Company has a reflection seismograph unit working in north Baldwin County, South Alabama.

A. R. MATTHEWS, L. B. Stableford and W. H. Rice, Jr., last week organized both Allied Pipe Line Corporation and Allied Oil Corporation of Illinois. The latter firm has been chartered to engage in refinery and other oil operations. Headquarters for both companies are being established at Salem, Illinois.

North Louisiana Fields

Four offset locations announced in new Shreveport field. Cotton Valley south flank test has saturation in E sand.

Shreveport.—Four new locations, two of which were spudded, all being offsets to producers or testing wells, were made last week in the Shreveport field in the wake of gauging of the field's first townsite well.

Ten miles southeast of the Shreveport field, Arkansas Fuel Oil Company's F. F. Webb 1, C NW SW 4-16n-13w, Glen Rose lime test, was coring Thursday at 5630 feet in the basal Glen Rose lime (Pettet), after logging this formation at 5614 feet; elevation is 168 feet. The first 14 feet did not show any porosity. Although 6 feet higher than the Shreveport field's discovery well in Section 27-18n-14w, on base of massive anhydrite at 4615 feet, the test was 73 feet lower on top of the Pettet horizon. It is a 6000-foot test.

The four new locations made in the Shreveport field during the last week are: R. E. Allison's Ellerbe 4, C NE NE 34-18n-14w; Ellerbe 5, C NW NE 34-18n-14w; Hurricane Petroleum Company (Grogan), Chandler B-1, C NW SE 34-18n-14w; and W. C. Feazel's T. R. Hughes 1, SE SW SE 33-18n-14w. The first two tests have spudded, the third is rigging and the fourth is moving in materials.

Rodessa Oil and Refining Company's (Grogan) Chandler 1, C SW NE 34-18n-14w, Shreveport's first townsite well, completed late in the previous week, was the field's fourth oil producer. It gauged 417 barrels in 24 hours through ¼-inch choke and made 2,370,000 cubic feet of gas. The gas/oil ratio was 5681 to 1. A test last week at R. L. Bauman's Slattery 1, NW NW 35-18n-14w, third oil well in the field, and which at first made only 192 barrels daily through ¼-inch choke, showed the well making 38.5 barrels per hour with a daily gas yield of 6,141,000 cubic feet.

C. D. Loe and associates' Lionel Meyer 1, SE SW SE 33-18n-14w, 1½

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo (Shreveport)—		
Rodessa O&G Co., Chandler 1, 34-18n-14w	417	5590

*Failures; †Junked; ¶Million cu. ft. gas.

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In Missouri the natives serve rice cooked to a mush, with sugar and a little milk. In Louisiana they steam it dry, every grain apart, and serve it with meat and gravy.

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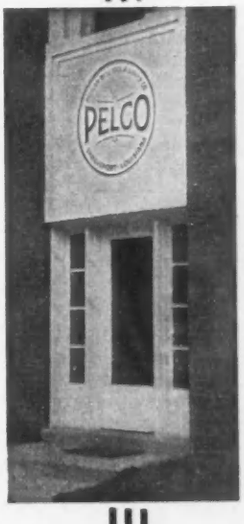

PELICAN WELL TOOL & SUPPLY CO.

SHREVEPORT LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Monroe
Cotton Valley—Greggton
Magnolia—Houston

miles south of production, was shut down waiting orders, after testing salt water at 5600-5608 feet, after plugging back after testing salt water in first test when casing set on bottom at 5632 feet was perforated at 5600-5627 feet. Later the well was plugged back and casing perforated at 5594 to 5598 feet where it swabbed some oil with some salt water. Operators may attempt another squeeze job in effort to shut off the salt water.

Arkansas-Louisiana Gas Company's Davis B-1, SW NW SW 7-16n-4w, second test in the Driscoll district, Bienville Parish, tested salt water at 6900-6930 feet and at 6860-80 feet, and was arranging to plug back and test again. Total depth is 7201 feet.

Magnolia Petroleum Company's Pardee C-1, C NW NE 17-23n-11w, geophysical prospect in Webster Parish, drilled ahead Thursday below 9802 feet, with plans to drill to 10,400 feet, if necessary in search of Permian lime. Buchanan and associates have assembled a block of wildcat acreage centering around Section 15-16n-8w, Bienville parish, for a 6,000-foot test to spud by February 1.

A test on the south flank of the Cotton Valley field, holding interest is Oliphant Oil Company's Stewart B-2, NW NW 4-20n-10w, which logged saturated "E" or Bodcaw sand from 8684 to 8692 feet and set 7-inch casing at 8672 feet. The well was testing Thursday. Standard Oil Company of Louisiana continues to assign leases at Cotton Valley to the Oliphant Company, holding an over-riding royalty, latest assignments being E½ SEc SW SE 34-21n-10w, W½ NE and NE NE 3-20n-10w, assignment requiring immediate starting of an 8500-foot test. Location was made in NW NE 3-20n-10w, offsetting the newest oil well at Cotton Valley. Mid-States Oil Corporation and W. E. Hunter have unitized and will drill a test in NW SE and SW SE 25-21n-10w, Cotton Valley, offsetting Stanolind Oil and Gas Company production in Section 36-21n-10w.

G. W. Zeigen and associates will drill another in a series of shallow wildcat tests in Caldwell Parish, location being made for Louisiana Central Lumber Company 1, 330 feet east and 1650 feet south of NWc 32-15n-2e.

North Louisiana leased in large acreage blocks

Shreveport. — Continental Oil Company, which recently found an interior salt dome at 4194 feet in Section C 3-15n-11e, Madison Parish, and is now drilling a second test in C 2-15n-11e, at 4190 feet, has assembled six blocks in northeast Louisiana in the last 11 months and Gulf Refining Company, which discovered the shallow Richland gas field, Richland Parish, November 1, 1926, has assembled five large blocks in the same general area since last January 1.

Besides the 15,000-acre block on which it discovered the salt dome, Continental Oil Company also has two other blocks in Madison Parish, one in the southeast part of township 16 north, range 12 east, of about 7000 acres and one of similar size in southwest part of township 15 north, range 13 east. It also has approximately 25,000 acres in two blocks of approximately the same size in Franklin Parish, one in the southeast part of township 13 north, range 8 east and the other in southwest part of township 10 north, range 9 east. Continental also has two blocks comprising about 25,000 acres together in Tensas Parish, one in west half of township 13 north, range 13 east, and the other in the northwest part of township 10 north, range 10 east.

Gulf Refining Company's blocks are distributed as follows: 6000 acres in northeast part of township 14 north, range 8 east, Franklin Parish; two blocks in Madison Parish, one of 5000 acres in township 18 north, range 13 east and the other of about 5500 acres in township 17 north, range 9 east. It also has about 15,000 acres in Tensas Parish, one of the blocks in township 13 north, range 13 east and the other in township 14 north, range 10 east. These blocks were leased after extensive geophysical exploration, supplemented by available sub-surface data.

Three miles east of production in Urania, LaSalle Parish, Robichaux and associates of Tulloas have leased 1500 acres for a Wilcox shallow test and in the same parish, two miles southwest of the village of Zenoria, G. C. Walsenheim and associates have assembled a block of similar size for a Wilcox test. In township 7 north, range 3 east, LaSalle Parish, along the Angelina-Caldwell Flexure, Shell Petroleum Corporation has a shooting unit at work. The same company has a seismograph unit working in township 7 north, range 8 west, Natchitoches Parish.

J. P. Evans of Shreveport is adding to his holdings in the Dubberly area, Webster Parish, part of which he assigned Union Producing Company for a 9000-foot test, now drilling. Evans is now leasing in Sections 22, 23, 24 and 25-18n-8w. Because drilling of this deep test has contracted for fuel from DeSoto Oil & Gas Company's Fleming 1 in township 16 north, range 9 west, about 15 barrels of distillate daily is being extracted from this gas, which runs 7 to 10 barrels per million cubic feet of gas. This is one of the recently completed Glen Rose gas distillate wells completed in the Lake Bisteneau area.

N. C. Watts of Shreveport has secured a 320-acre lease from W. G. Ray of Shreveport in township 15 north, range 10 west, Lake Bisteneau area, on which he is obligated to start a 6000-foot test by February 1.

Magnolia hearing

El Dorado, Ark.—A hearing has been called for December 7 at El Dorado by the Arkansas Board of Conservation to hear evidence on the Magnolia (Kerr-Lynn) area, Columbia County, for determining the daily allowable of the field which now has four Permian lime oil producers and four drilling operations under way.

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Union County (Schuler)—		
Lion O. R. Co., Bank 1, 12-18-18	890	7708
C. H. Murphy, Fee 1, 13-18-18	1500	7700
Phillips, Edwards 1, 17-18-17	25	7740
Union County (Rainbow City)—		
E. G. Bradham, Raulston 1, 12-17-14	1440	3010

*Failures; †Junked; ¶Million cu. ft. gas.

Arkansas Fields

Second wildcat test starts in LaFayette County

El Dorado, Ark.—Material is moving in for a Permian lime wildcat test in the Lewisville-Stamps area of LaFayette County, by Shell Petroleum Corporation and Ohio Oil Company at Warren 1, C SE SE 13-16-24. It is on a block the two companies have had under lease for some time and 1¼ miles west of a 7700-foot test drilled two years ago by Ohio Oil Company that had some interesting showings. It is the second deep wildcat test in two weeks for LaFayette County, J. K. Wadley and associates having just spudded G. W. Taylor 1, NE SW 15-19-26, along a northeast projection of the Rodessa fault. It is a 6000-foot test.

In Calhoun County, Samuel S. Alexander has shut down at 3406 feet in Smythe 1, Section 7-11-14, after electric log. Bottom of the hole is 700 feet in Paleozoics. It may be deepened later. Phillips Petroleum Company is taking some leases in township 18, range 20, Columbia County, southeast of Magnolia. In LaFayette County near Stamps, Standard Oil Company of Louisiana has a shooting unit in township 16, range 23.

In Miller County, four miles northwest of Lost Prairie, Mrs. S. O. Thompson and associates (formerly F. F. Earles) General American 1, SE SW 20-14-26, is reconditioning hole at 3851 feet in shale and lime, preparatory to deepening to 6000 feet in search of the Permian lime. This test showed 900 feet of salt water in an 8-minute drill-stem test at 3675-95 feet.

Tide Water Associated Oil Company is preparing to drill a deep wildcat east of Stephens in Ouachita County, in Section 23-15-19, and negotiations are under way with G. H. Vaughn to drill the test for an interest in the block.

Another deep wildcat test seeking the Permian lime expected to be started soon is C. H. Murphy and associates who have a wildcat block in township 19, ranges 13 and 14, Union County, 15 miles southeast of El Dorado. Oliphant Oil Company is reported negotiating for an interest in this test.

The Hagerling Estate of Oklahoma has assembled a 28,000-acre block in Lee, Monroe and adjacent counties for a test to be started by next April 3. Delta Drilling Company is expected to drill five shallow tests on a 55,000-acre block assembled around Section 8-15n-2e, Lawrence County.

Arkansas permits

El Dorado, Ark.—Five drilling permits were authorized last week by the Arkansas Board of Conservation, as follows: Columbia County — Atlantic Refining Company, F. Barnett 1, C SW SE 14-17-20; Miller County—Merritt and Lyons, E. B. Mitchell 1, located 990 feet south and 330 feet west of C 2-20-28; Union County—J. R. Lockhart, Raulston 1, SW SE 12-17-14; Roberts and Murphy, Leona 3, located 660 feet south and east NWc Lot 6, SW 7-18-17; C. H. Murphy and associates, Fee 2, located 643 feet east and 330 south NWc SW NE 13-18-18.

Illinois Developments

Show in wildcat may run search to north central counties. Clinton County wildcat showing favorably for production.

Olney, Ill.—A. C. Leathers et al's R. King 1, 2 miles south of Curran and first test to be undertaken in Sangamon County during the current development campaign, cored a 21-foot saturation described at "commercially favorable" in the Trenton lime, topped at 1798 feet. The wildcat had been deepened with a rotary from 1370 feet, to which depth it had been drilled with cable tools. Smaller showings at the 1400- and 1760-foot levels had been passed through.

The well was being cleared late last week preparatory to acidizing, a procedure suggested by the state geological survey and which is being followed rather than original plans to shoot the test. Successful completion of the wildcat, which is in the center of a 14,000-acre block, will speed up development in a fringe of uncharted north central Illinois counties described by state geologists as territory "favorable" to oil production.

Members of the syndicate drilling the test include Sidney Frohman, of Sandusky, Ohio; John C. Cosgrove, of Philadelphia, and W. R. Hopkins, of Cleveland. Increased leasing activity was reported in all sections of Sangamon County last week; only 25,000 acres had been leased prior to announcement of the King wildcat's showing.

In northern Clinton County, Kesl-Fox's Maibaum 1, NE SW 12-3n-3w, wildcat 8 miles north of Carlyle, cored Benoist saturation from 1161-69 feet which analysis showed would make from 50 to 75 barrels of oil daily. The last 6 feet of the core was well saturated, the first 2 feet being shaly. Successful completion would open a pool in a section where several dry holes have been drilled. It was waiting on cement after pipe had been run to 1145 feet.

Efforts to complete Magnolia Petroleum Company's J. W. Dare 1, SE SW NE 22-3s-2e, McClellan Township, Jefferson County, continue. It has been plugged back to 2765 from 2780 and tubing is being run preparatory to a test. Salt water was encountered at the lower depth after saturation had been cored.

In Marion County, Hull, Stouffer & Boughter's B. E. Martin 1, SW SW 10-2n-2e, Salem Township, which promised a north extension of the Lake Centralia field to within a mile of Salem, the county seat, when it cored 14-feet of well-saturated McClosky lime, was running a squeeze job in an effort to stop a flow of water that developed during the week. The well had been flowing oil by heads, but no production test had been made.

Three quarters of a mile southwest of production in this field, Miles, Hayes & Burke's Wallace 1 S½ NE NE 36-1n-2e, pumped 65 barrels on a 4-hour test.

Efforts to extend the Eastern Fayette County field were not so successful. Papoose Oil Company's F. Dycus 1, NW NE SW 18-7-2e, several miles west of production, was abandoned, as was Jarvis Brothers' Joint Stock Land Bank 1, NW NW NE 33-7-3e, southeast of production in Avena Township, bottomed at 1936 feet.

Closely watched this week will be Rosenthal & Mylius' Feezel 1, NE NE SW 8-6n-3e, ¾-mile southeast of Jarvis Brothers test on the Walnut Grove School acreage which was abandoned as dry recently. This test is attempting to find the connection, if there is any, between the production in the southern part of Wheatland Township and that in Avena Township.

In the North Olney pool, The Texas Company's Ed Winters 2, Section 27-4n-10e, Richland County, cored 4 feet of good McClosky saturation below 3100 feet, giving rise once more to hopes that Olney may experience a town-lot drilling campaign. Adjoining the city limits, it is an east offset to this company's Harrolle 1, a fair pump-

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ing well, which in turn is a north offset to First National Bank 1, inside the city limits, which was dry.

Kingwood Oil Company rebuilt the derrick for W. M. McCane 1, Section 35-4n-10e, at the northeast corner of the city limits and two locations east of Bank 1, and was drilling at 2850 feet. The derrick had blown down in a storm several weeks ago and for a time it appeared that the location might be abandoned.

Other operations in the North Olney pool were: Chas. Skinner et al's Sylvan Iris School 1, Section 23-4n-10e, drilling at 1700 feet with cable tools; The Texas Company's C. Scherer 1, Section 22-4n-10e, drilling at 1700 feet; Wicklund Development Company's J. Schnepper 1, Section 21-4n-10e, drilling at 2200 feet; Lough et al's Mrs. Fred Schilt 1, Section 25-4n-10e, surface pipe set, waiting for rotary rig to complete; Pyramid Oil Company's Ed J. Houser 1, Section 15-4n-10e, location, and Pyramid Oil Company's Stiver-Beck 1, Section 22-4n-10e, rigging up. The Schnepper 1 is 1½ miles west of present production.

Leach Bros.' A. Lee 1, SW NE SE 11-1s-10e, Albion Township, first test to obtain an oil show in Edwards County, picked up an oil sand saturation at 4095 feet, which may be the Carper sand of the Kinderhook series, from which production is obtained in the Martinsville area. The Kinderhook series is just above the Devonian formation in which the Niagara lime is found. Considerable oil has been baled from the hole, and operators are searching for a 5¼-inch cable tool core barrel so that the formation can be better examined. This wildcat had an oil showing in the McClosky which, however, was drowned out by salt water after acidization.

In the new Jefferson County pool near Mount Vernon, opened two weeks ago by Magnolia Petroleum Company's T. J. Harvey, NW NE SW 22-2s-1e, Casner Township, this company announced offsets for SW SE NW 22-2s-1e and at NEc NW SW 22-2s-1e. Tools were being moved in for the north offset, while the west was still a location. To the north, Transwestern Oil Company's Casner 1, was staked on the NWc SW 9-2s-1e, and Yingling et al's Reynolds 1, C SW SE 14-2s-1e, was moving in rig. On a 130-acre tract bought from Coast Producers, Inc., for $15,000 cash and $200,000 to be paid out of one-eighth of the oil, W. C. Curry located Peterson 1, SWc NE SW 23-2s-1e.

Southeast Richland County's first test will be completed with rotary tools from its cable tool depth of 600 feet, at which point it has been standing for some time. It is Rockwood & Leathers' Amos Yonaka 1, NW SE SW 22-2n-14w, Bonpas Township.

Fell Oil Trust Company's J. Thomas 1, NE SW NW 15-1s-2w, Cooperstown Township, Brown County, removed casing and was plugged and abandoned. Several barrels of oil were taken from the hole, but there was insufficient saturation to make a commercial well.

ILLINOIS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Christian County—		
Brown & Lacy, McGuire 1	*	1457
Clark County—		
Phillips & Kost, Dallas 1	¶30	459
Clay County—		
Pure Oil Co., J. J. Smith 2	438	3085
Zoa Moseley 2	100	3070
G. L. Travis 2A	124	3061
Clinton County—		
Hines et al, McGowan 1	10	1388
W. C. McBride, Inc., R. G. Terry 1	15	1385
W. B. Smith, Shaw 1	200	1382
W. H. Nichols, Hiltididal 1	60	1384
Newton & Ward, Trame 1	60	982
Gulf Refining Co., M. Felton 2	48	1373
H. H. Weinert, Buehler 1	192	1368
Coles County—		
Mabee et al, Oakland Bank 1	*	1134
Fayette County—		
Ray Brown, Rosa Hopper 7	180	1555
W. C. McBride, Inc., H. S. Williams 1	65	1577
Hausman, Townsend 1	250	1550
Sherman et al, Lay 2	160	1483
Cummings et al, Burtschi 7	125	1603
Mabee Drilling Co., Kapp 1	*	1637
L & G Oil Co., Emerson 1	*	1560
Magnolia Petroleum Co., Clow 1	225	1583
Clow 2	216	1575
W. B. Johnson Drilling Co., Goetting 6	125	1543
Carter Oil Co., T. N. Logsdon 6	45	1581
L. Wood 7	291	1584
L. Wood 8	115	1561
E. Trullinger 1	927	1615
M. Larrimore 1	425	1593
J. B. Drees 1	45	1486
J. B. Drees 2	490	1474
B. Williams 1	146	1601
Paul Dunaway 1	616	1512
B. Kimbrell 1	112	1498
S. M. Dial 1	155	1589
John Dial 2	460	1588
Dove 15-6	1	1539
L. Wood 15-7	1	1490
Dover 15-8	1	1564
Paul Doran, Goetting 5	200	1556
Goetting 6	310	1552
Oil, Inc., Flurton 2	200	1598
Minerva Oil Co., Tish 5	120	1624
Tish 6	125	1624
Broadus & Snowden, First National Bank 1	50	1549
Jefferson County —		
J. G. Buell, Pitchford 1	*	2413
McDonough County—		
W. I. Cole, J. L. Williams 1	*	510
John Mehmken, James 1	*	815
Macoupin County—		
E. McCallum et al, Sanders 1	*	420
Madison County —		
Penn-Illinois Oil Co., Poag 1	*	2093
Marion County—		
Mammoth Producers & Refiners, Bachman 5	110	1888
Cameron, Antioch Cemetery 1	350	1845
Tide Water Associated Oil Co., Miller 1	240	1879
Cattani et al, J. Baucher 1	*	2133
Magnolia Petroleum Corp., W. O. Chitwood 1	264	1876
W. B. Young 4	*	2170
J. H. Young 2	336	1871
J. H. Young 3	288	1778
S. Shanafelt 5	384	1770
S. Shanafelt 6	336	1705
S. Shanafelt 9	336	1747
Mary Harley 3	1500	1908
D. A. Shanafelt 2	145	1757
Shell Petroleum Corp., Salem Bank 2	352	1789
Salem Bank 3	241	1791
Farthing 1	246	1805
Farthing 2	250	1795
Farthing 3	412	1799
Ohio Oil Co., M. Young Heirs 3	173	1799
Kingwood & Bell, Shanafelt 2	240	1810
Shanafelt 3	257	1795
Kingwood Oil Company, Maxwell 1C	1000	1932
Maxwell 2C	591	1718
Paul Rossi, Brooks 2	180	1807
Williams et al, Brooks 1	288	1806
Sheppard et al, Greer 1	*	1946
Greer 2	262	2041
John Pugh Drilling Co., H. V. Toulme 1	90	1891
Wiser Oil Co., Weems 3	542	1882
The Texas Co., Canull 4	*	1822
K. Wayman 2	550	1732
E. Tate 4	378	1780
W. M. Stroup 1	221	1755
O. Hopkins 1	960	1683
W. Richardson 1	265	1695
F. Miller 2	938	1795
H. A. Reynolds 1	250	1808
Branch 1	500	1805
Branch 2	210	1850
Buckley 1	467	1878
S. McCoy 1	546	1795
C. Farthing 1	270	1883
Cumberland Producers et al, MacRoberts 2	265	1773
MacRoberts 3	230	1787
Baldwin Oil Co., Holmes 1	170	1882
Zephyr Drilling Co., C. E. Lankford 2	192	1901
Baldwin & Streeter, Schraffler 1	*	2331
Max Pray, S. Rhodes 1	*	2453
Robin H. Brians, Trustee, Geo. A. Nattier Heirs 4	74	1440
Newman et al, Neilson 1	*	1652
Wigoso Oil & Gas Co., A. D. Nichols 1	*	1550
Montgomery County—		
Joe Kesl, McDavid 1	*	1250
Swords et al, Ohlman 1	*	1610
Morgan County—		
Alexander Oil Co., T. Cockin 1	*	1590
Moultrie County—		
Continental Oil Co., A. Miller 1	*	1866
Shelby County—		
Simar Oil Co., Prudential Life Insurance Co. 1	*	1921
O. J. Connell, C. Jading 1	*	1865
Wabash County—		
Max Oil Co., Holson & Dorney 11	*	1537
Adams Corners Oil Co., R. F. Leek 3	*	1638
Washington County—		
Thompson Drilling Co., Musial 1	*	3537
Wayne County—		
Pure Oil Co., S. Fearn 3	2701	3116
S. Crews 1	348	3135
A. Bruner, Kuyoth 3	250	2986
Texas Co., J. Gernon 1	101	3343
W. A. Koontz 1	161	3432
W. A. Koontz 2	142	3352
E. Koontz 3	500	3339
H. H. Weinert, Inc., Morlan 2A	180	3321
Morlan 4B	2000	3326
Twist 1B	210	3348

*Failures; †Junked; ¶Million cu. ft. gas.

Indiana

Gibson County wildcat finds Benoist at 2300 feet

Evansville, Ind.—Hayes & Fitzpatrick's Cooper 1, between Griffin, Indiana, and Grayville, Illinois, NW NW 13-2s-14w, Gibson County, encountered a sand formation below 2300 feet believed to be the Benoist. The wildcat may be drilled to a contract depth of 3400 feet. It is making rapid progress and is being closely watched.

Another important deep wildcat, Sun Oil Company's W. W. Gray 3, SE NE 20-8s-14w, Point Township, Posey County, was drilling below 3150 feet with the going slow because of frequent coring. It will go to the Devonian, expected at about 3400 feet.

In Knox County, Parshall-Graham Oil Company's Lane 1, near Decker, twisted off a bit at 2800 feet and has a serious fishing job. This wildcat, scheduled for the Devonian, has had several nice shows. Mid-West Development Corporation's P. F. Jackson 1, NW NE 54-3n-9w, Palmyra Township, the only other operation in Knox County, was drilling below 2800 feet.

Knox County is about 50 percent leased for oil and gas, the principal lease owners being The Texas Company, Ohio Oil Company, Superior Oil Company, Murphy Oil Company of Pennsylvania, Mid-West Development Corporation, Gulf Refining Company, Kentucky Natural Gas Company, J. T. Oliphant, Parshall-Graham Oil Company and Newton Pipe Line Company.

Reports from other wildcats, for the most part a week or more away from critical depths, included: Sycamore Oil Company's Flora Belle Collins, 1 mile south of Yankeetown, Warrick County, drilling below 1650 feet; Jack Scheer et al's Phillips 1, 12 miles northeast of Boonville, Warrick County, drilling at 1075 feet; Dameron & Sons' R. Haines 1, 1 mile south of Rockport, Spencer

County, fishing for lost tools and three joints of pipe at 1370 feet, near the top of the McClosky; Sun Oil Company's Browne 1, near Colemont, Clay County, drilling below 700 feet, and Mid-West Development Corporation's Keefer 1, near Loogootee, Daviess County, rigging up.

Sole completion of the week was J. C. Ellis, Trustee's William H. Shawhan 4, NE NW 26-1n-9w, Madison Township, Pike County, completed as a 12-barrel well in the Oakland City sand at 1309 feet.

EASTERN STATES
Completions

WEST VIRGINIA

Company, Well and Location	Init. Prod. Bbls.	Depth
Cabel County—		
D. & B. Drilling Co., Hatfield 1	¶.15	2270
Calhoun County—		
Ivy Gainer et al, Morris 1	¶.75	2205
Gilmer County—		
Knight, Reed 1	¶.13	1115
Jackson County—		
C. F. Goebels Oil Co., Warne 1	*	1700
Kanawha County—		
United Carbon Co., Prillerman 1	¶13.27	5175
Poca Fork Oil & Gas Co., Combs 1	¶	5254
Logan County—		
Hope Natural Gas Co., Lawson Heirs 7823	¶.28	3813
Ritchie County—		
W. R. Hays, Snodgrass 3	¶.96	2097
Wirt County—		
Andrews & Roberts, Gillespie 2	*	960
Wood County—		
Carnegie Natural Gas Co., Brake 1	¶.09	2251

PENNSYLVANIA

Fayette County—		
Nollem Oil & Gas Co., Piccolamini 1	¶1.12	1020
Greene County—		
Monongahela Oil & Gas Co., Vance 2	¶.15	1634
Washington County—		
K. Aten, Vance 1	*	....
Oil City Trust Co. et al, Fee	1	....
N. V. V. Franchot, Mgr. Trustee, J. Meridan et al	2	....
Tapp, Gallets & Buffington, Trs., Fee	6	....
Forest Oil Corp.	1	....
Forest Petroleum Corp.	1	....
Niagara Oil Corp., 3 wells	3	....
Bradford Transit Co., 7 wells	7	....
Victory Oil Co., Wright	2	....
Esther Oil Co., Lawton	2	....
Bradford: Water (Pressure) Wells		
D. E. Quinlan Estate, Fee	...	....
Forest Oil Corp.	...	....
Butler-Armstrong District		
Heck & Co., Titus Peffer	1	....
Baldwin, Campbell	1½	....
Middle District		
Linwood Oil Co., Germer	2	....
J. W. Shawl, J. W. Shawl	1	....
H. B. Beels & Co., J. W. McIlhattan	½	....
New York-Pennsylvania: Gas Field		
Cunningham Natural Gas Co., Hilligas	¶	....

OHIO

Athens County—		
Nuzum et al, Kinner 2	¶.25	1064
J. B. Bowman, Poston 1	¶.18	550
C. H. Bowman, Rogaski 1	¶.10	1754
Fairfield County—		
Foraker & Son, Spittler 1	*	2362
Guernsey County —		
Jones & Jewell, Lewis 1	*	1276
Lawrence County—		
Starr Gas Co., Franklin 1	¶.23	2787
Licking County—		
Armbruster et al, Davis 2	10	705
Ward et al, Connor 1	3	765
Geo. H. Long, D. & L. Layman 4	3	807
McClay Bros., Pruce 1	*	2752
Medina County—		
Wm. Dempsey, Holiday 3	¶1.00	2581
Morgan County—		
W. S. Harris, Carpenter 2	¶.50	865
Noble County—		
Yorker Valley Oil & Gas Co., Dollison 1	¶.30	1506
Perry County—		
C. Z. Ruth, Nuzum 22	5	1013
Stark County—		
S. McCloy, Styer 3	¶.95	4630
Obermiller Bros., Gill 1	¶.50	4177

*Failures; †Junked; ¶Million cu. ft. gas.

Kentucky

Henderson County well not extension; small producer

Owensboro, Ky.—Fred T. Hildt and Sunflower Oil & Gas Company started Don Moore 1, 2 miles east of here, for the first test of the McClosky lime in this immediate area. It was spudded last week. The operators hold a large block of acreage in the area.

Wildcat interest was centered on J. A. Shoemaker's O. Busby 1, drilled by Cameron Drilling Company 6 miles from the Blackwell pool of Henderson County, opened this year, and 2 miles from the Niagara pool, opened in 1921. It was drilling below 2015 feet, near the McClosky, after passing through a fine showing in the Jett sand at about 1250 feet.

A 30-pound nitro shot did not improve the outlook at Snowden & McSweeney and Cumberland Petroleum Company's J. T. Griffith 1, 2 miles north of Reed, Henderson County. Two-inch tubing was being run last week and a pumping test was to be made. It promises only a light producer. This test is believed to indicate a new pool, rather than a 5-mile extension to the Birk City pool, on the basis of crude samples. Spring Rose Drilling Company's Burr-Hefler 1 was rigging up as a 1000-foot diagonal offset to Griffith 1.

In the new Spottsville pool of Henderson County, Magnolia Petroleum Company's J. W. Isabell 1, ½-mile northeast of the large S. Green 1 pool opener, was coring at the top of the McClosky. This company was still trying to complete W. H. Negley 1, a 1000-foot west offset to the discovery, in the Cunningham sand. The well had been drilled to 2250 feet, but was a duster in the McClosky. New tests started in this area were Grubb et al's T. Cooksey 1, a mile south of Spottsville, and Ralston & Sales' Stewart Ferry 1, just southeast of the Spottsville bridge. Successful completion of the latter will start townlot drilling in Spottsville.

Mid-way between the Birk City and Spottsville pools and 2 miles north of Bluff City, Henderson County, Cooper, Acos & Cooper's Ruggles 1 was drilling at 1350 feet.

Among other Kentucky wildcats were: L. C. Young & George Engle's F. Gibson 1, between Calhoun and Beech Grove, McLain County, drilling at 502 feet on the way to the McClosky; Gulf Refining Company's L. W. Schmetzer 1, 7 miles west of Madisonville, Hopkins County, coring the Golconda at 2258 feet; Fred Phillips' J. E. Arnold 1, 3 miles southwest of Utica, McLean County, drilling at 660 feet, and the same operator's Shean Coal Company 1, a mile northeast of Beton, Muhlenberg County, drilling at 225 feet.

KENTUCKY
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Butler County—		
J. C. Miller, Trustee, Haws 4	20	521
Cumberland Petroleum Co., Andrews 1	¶.10	354
Evans et al, Moore 1	*	920
Snowden & McSweeney et al, B. Lacefield 1	*	607
Daviess County—		
A. H. Carpenter et al, Mrs. Sapp 2	250	1877
A. Swartz 1	*	1912
Major Oil Co., Wahl 1	400	1930
Prudential Insurance Co. (Morris) 1	*	2053
Ashby & Ellis, Holland 3	*	623
Floyd County—		
Inland Gas Corp., Layne Heirs 201	35	1550
Floyd Williams, Stanley Heirs 1	¶.80	2710
Hancock County—		
J. C. Ellis, Richards 20	40	....
Johnson et al, Gordon & Lynch 15	5	222
Henderson County—		
Aetna Oil Service Corp., Dempewolf 4	300	....
Hopkins County—		
Jess Ashby et al, Cummings 1	*	2147
Lawrence County—		
Kentucky Oil Producers, Diles 2	3	898
Lee County—		
Cable, Moore 9	5	....
McLean County—		
South Penn Oil Co., Kirtley 1	100	1406
Martin County—		
Kentucky-West Virginia Gas Co., Salyer 5248	¶1.00	1929
Ohio County—		
Nollem Oil & Gas Co., Crowe 11	10	622
Globe Oil Co., Kelly 3	5	....
A. Teller Trustee, Dickens 9	*	630
Pike County—		
James Hatcher, Scaff 2	¶.17	3056
Powell County—		
Hall & Ogle, Pilot 1	5	....

*Failures; †Junked; ¶Million cu. ft. gas.

GERALD WESTBY, president of Seismograph Service Corporation, discussed "Seismic Reflection Methods" before the Engineers' Club of Tulsa last week. W. T. Born, vice president of the Society of Exploration Geophysicists, introduced the speaker, and F. W. Robson, club president, presided.

"Pursuant to an order entered in Cause No. 99620-D, styled Lonnie Glasscock vs. T. H. P. Duncan, I offer for sale as receiver, to the highest bidder for cash, a 20-acre oil and gas lease, Duncan fee, Penn Survey, Gregg County, Texas.

This property has three producing wells, with the possibility of an additional permit.

All bids shall be posted with me, as receiver, on or before January 18, 1939.

For full details and all information concerning the property, communicate with the undersigned.

G. C. DUNN, Receiver
Great National Life Building
Dallas, Texas."

New Mexico

Short leases force Lovington prospect area drilling

Hobbs, New Mexico.—A new test assigned the Lovington prospect, east central Lea County, provides the area with four operations besides the discovery gasser, which has been delayed in completing. The unusual activity for a wildcat area that has not been tested in the projected oil horizon, except for previous failures around the rim of the structure, is due to short-term leases.

Participants are satisfied that the structure will yield oil production in the Permian near the 4900-foot level after Westmount Oil Company's State-Amerada 1, C NW NE 12-17s-36e, registered considerable structural relief and encountered heavy gas blowouts at intervals in drilling to 3986 feet. These blowouts disrupted the casing program, and the well is to be temporarily completed in anhydrite above the big lime after cementing 5½-inch pipe at 3018 feet. It is reported that additional cement may be injected between the casing strings before an attempt will be made to complete as a dry gasser.

Barnsdall Oil Company's State-Humble 1, three miles northwest of the gasser, apparently missed the upper air and gas pockets in the Yates and Brown lime zones, and was drilling at 3710 feet. Top of the Brown lime was logged at 3360 feet, with an elevation of 3902 feet. Skelly Oil Company's State 1-N, C NW NE 36-16s-36e, two miles north of the gasser, is the latest entry, and surface pipe was cemented at 293 feet. Stanolind Oil & Gas Company's State 1, a north offset to the original prospect, was slated to land surface pipe late last week. Amerada Petroleum Corporation's State 1-L-A, west offset to the latter, was drilling below surface pipe, which was cemented at 281 feet.

Shell Oil Corporation's Harwood 1, located on the Milnesand geophysical prospect, Roosevelt County, failed to encounter oil or gas showing in coring to 4640 feet, and will proceed to the Glorietta member of the Lower Permian.

Vacuum Failure

A failure for the east portion of the Vacuum field loomed last week when Cities Service Oil Company's State 1-L, C SE SW 15-17s-35e, one mile north of production, tested dry when formation tester was used at 4381-4701 feet. It will deepen to the water level. Upper markers logged by this outpost established a low structural position, Magnolia Petroleum Company's State-Bridges 19, C NW NW 24-17s-34e, offsetting the discovery site, flowed 165 barrels natural on completion gauge through ¼-inch choke from broken pay at 4420-4700 feet. The company contributed two new projects for the field the past week. State-Bridges 20, a south offset to the above completion, was drilling at 1650 feet, and State-Bridges 21, a west offset to the new well, has rigged up. Standard Oil Company of Texas' State 3, C SW SE 24-17s-34e, has rigged up.

Lea County accounted for 7 new operations, including the Vacuum field trio. The Penrose sandy-lime belt gained two tests from Olean Petroleum Company's Farrell-Humble 2, C SW SE SE 22-22s-37e, and Humble Oil & Refining Company's Greenwood 4, C SE SW 9-22s-37e. J. M. Rush et al's Weatherly 1, C SW NW 21-21s-37e, east edge of Hardy area, has landed surface pipe. In the Langlie area, Geo. F. Getty et al's State 1-G, NW NW NW 2-25s-37e, offset production on the east flank.

Texas Pacific Coal & Oil Company's State 7-A, NW NW NW 22-23s-36e, minor east outpost for the Lynn oil area, was drilling the pay zone at 3670 feet, using cable tools, with an estimated yield of 15 barrels of oil and 4,000,000 feet of gas daily.

NEW MEXICO
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Eddy County—		
English & Harmon, Daugherty 1, nw ne sw 3-17s-27e	¶1	2319
Lea County (Eunice)—		
Continental, State 3-J-2, c se ne 2-22s-36e	1800	3826
Lea County (Langlie)—		
Culbertson-Irwin, Inc., Dabbs 2, ne nw nw 35-25s-37e	192	3330
Italo Pet. Corp., Carlson 2-A-22, ne sw se 22-25s-37e	1220	3354
Lea County (Penrose)—		
Olean Pet. Co., Farrell-Humble 1, c ne se 22-22s-37e	56	3684
Lea County (Vacuum)—		
Ohio, State-Shugart 1, c ne se 34-17s-34e	1392	4710

*Failures; †Junked; ¶Million cu. ft. gas.

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THE WATSON-STILLMAN COMPANY
ROSELLE, NEW JERSEY

Mountain Area

Cole Creek extension test is coring for Wall Creek

Casper, Wyo.—Attention of operators in the Rocky Mountain district was centered this week on General Petroleum Corporation's State 1, NW NE SE 16-35n-77w, on the northern edge of the Cole Creek field, 13 miles northeast of Casper, in Natrona County, central Wyoming. It is being cored below 6838 feet with the Wall Creek sands, primary objective, expected within the next 50 feet. This location is a mile north of the Cole Creek discovery well, Government 1, NW NW SE 21-35n-77w, which reported oil saturation in the Wall Creek beds which were, however, too tight to permit production at that location.

An increase in activity was also seen for Lance Creek, where 2 wells are near completion and a new location released for another to be drilled immediately. Continental Oil Company has cemented 7-inch casing on top of the Leo sand at 5472 feet in Dielman 2-B, NE NE NE 8-35n-65w, an outside location on the southern edge of the field, and is waiting on cement to set. Ohio Oil Company's Cash OPC-2 6, CNW NE 4-35n-65w, inside location, drilled plug on 7-inch pipe early in the week and drilled to 5421 feet in Leo sand saturation. Tubing was run and hole filled with Sundance crude to clean out the formation preparatory to testing. Ohio Oil Company also spotted Leo OPC-16 6, NW NE SW 35-36n-65w, in the eastern area of the field, an east offset to Leo 5 well which opened the Minnelusa formation for commercial production in June, 1937. This well, for which the Leo sand of the Minnelusa series was named, bottoms at 5537 feet in the Leo horizon from which it produced 1827 barrels initial.

Southern extension test of Lance Creek, producing area, Adams Oil & Gas Company and Felmont Oil Corporation's Baker 1, NW NE SW 8-35n-65w, a half mile south of the Continental Oil Company's Dielman 1-B, recent extension, is drilling below 4297 feet nearing the Minnelusa formations.

Drilling operations in the Montana district have slowed with the advance of winter although an increase is expected in the event that a proposed 1500 barrel refinery to be constructed at Cut Bank, Mont., becomes a reality. The plant would be added to the absorption unit operated by the Glacier Production Company at that city and would form an additional market for production from the Cut Bank field. Under the present set-up the field is being operated under voluntary proration as the result of lack of markets for production.

ROCKY MOUNTAIN
Completions

COLORADO

Company, Well and Location	Init. Prod. Bbls.	Depth
Fremont County—		
R. E. Hawks, Orndorff 1, e ne sw ne 3-19s-70w	2	1988
MONTANA		
Glacier County (Cut Bank Field)—		
Glacier Production Co., Parker Unit 1, cel sw 28-34n-5w	¶22½	2683
Van Ormer 3, cel nw 17-33n-5w	201	2941

*Failures; †Junked; ¶Million cu. ft. gas.

Michigan Fields

Bloomingdale most active spot as completion list falls off. Van Horn's single completion has 550 barrels initial.

Mt. Pleasant, Mich.—Michigan completions fell off sharply for the week with the Bloomingdale townsite district contributing the chief new flush production. In this area, five new lot wells, all on inside locations, accounted for an aggregate of 2500 barrels per day of new flush—one well hitting a 1200-barrel potential.

Gulf Refining Company swabbed Hall 4, NE SE SW 34-19n-6w, Redding Township, Clare County, into production for 550 barrels the first 24 hours natural from 3913 feet for the only new completion in the Van Horn pool.

Wildcats held more interest than proven districts with a number of outposts drilling in or cased on potential producing horizons. Gulf Refining Company's Hauck 1, Section 13-15n-5w, Nottawa Township, Isabella County, was coring at 3795 feet, 5 feet in the Monroe, on a semi-wildcat located about a half mile north of Boston Oil Company's Fox 1, which when drilled a year ago showed saturation in the Monroe beds but was eventually junked.

Rowmor Corporation's McBain 1, 27-21n-1e, Ogemaw County, checked Dundee at 3285 feet. The test is approximately six miles southwest of Dundee production in the West Branch field.

Dale Leonard Prospecting Company continued to drill ahead on what is currently the deepest active test in Michigan. The company's Huron Milling Company 1, Section 10-16n-15e, Sand Beach Township, Huron County, is in the "Thumb" and just off the Lake Huron shore line. The test was last reported drilling at 4475 feet, probably in the thick Salina beds. Dundee came in at 1927 feet and Monroe at 2225 feet. Trenton should come in before 5000 feet. If the test reaches its objective, the Trenton, it will be the first to test this zone in Michigan this year.

The closest commercial production to the Leonard test is about 50 miles southwest in Akron-Wisner Townships, where both Dundee 2800 feet, and Monroe 3430 feet, production is being developed.

Drilling progress has been more or less at a 3092-foot standstill for two weeks on Gulf Refining Company's Bateson 1, Section 2-14n-4e, Bay County, in an attempt to get a chemical seal water shutoff at the base of the Dundee section. This test is projected to the Sylvania lime-sand zone and is at 3092 feet with an 8-inch hole. Operators are drilling with cable tools and hope to get a shut off with the chemical seal to eliminate setting of a pipe string, which would reduce the hole and might jeopardize reaching the objective in the event other water horizons were logged.

CLYDE H. GARNER, with Lago Petroleum Company, Maracaibo, Venezuela, arrived in Houston via plane last week. He will spend the next 60 days vacationing before returning for another sojourn. During his stay in the United States he will visit his old home in Monahans, Texas.

MICHIGAN
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
Muskegon Devs., Conkin 3, se ne sw 9-3n-13w	50	1656
Clare County—		
Taggart Bros., Bicknell 1, c se 8-18n-5w	*	1598
Gulf, Hall 4, ne se sw 34-19n-6w..	550	3913
Daily Crude, Van Horn 3, ne sw sw 34-19n-6w	*	3933
Gladwin County—		
Rex Oil Co., Woodring 4, ne sw se 23-18n-1w	30	3598
United Driller, Washburn 1, sw sw ne 28-17n-2e	40	3536
Isabella County—		
Turner Pet. Corp., McNerney 1, nw ne nw 28-16n-3w	250	3709
Van Buren County—		
Mich. United, Gardner 1, se sw nw 16-1s-14w	*	1270
Fred White, Corning 1, ne se ne 17-1s-14w	35	1203
O. O. Borden, Road Commission 1, se sw ne 17-1s-14w	100	1230
D. F. Jones, Rodgers 2, sw ne ne 17-1s-14w	1200	1219
J. E. Flanigan, Mooy 1, ne nw se 17-1s-14w	200	1241
W. R. Borough, Wait 2, nw ne ne 17-1s-14w	1000	1243
Great Lakes Oil Co., Niles 1, ne ne sw 18-1s-14w	*	1290
Rex Oil Co., Foster 1, nw sw ne 11-1s-15w	60	1172
Gulf, Vereeke 1, se ne se 27-4s-15w	*	1068

*Failures; †Junked; ¶Million cu. ft. gas.

California Fields

New field in Kern County may revise Naval reserve plans. East Coalinga well has big flow from thick sand section.

Los Angeles.—Richfield Oil Corporation apparently has opened a new deep oil field on the floor of San Joaquin Valley with completion of Tupman-Weston 1, NEc 32-30-25, Kern County, with a flow exceeding 3700 barrels of 39-gravity oil with 18,000,000 cubic feet of gas, from 8677 feet. Effort is being made to reduce the gas flow, after which the well will be cut back to 400 barrels daily in line with proration agreements. The well is on a solid block of 6000 acres under lease to the company, which will permit orderly development, but nearness of this strike to the Elk Hills Naval Reserve may cause a revision of the Navy's plans for drilling there. Location is 3 miles west of the recent strike of Ohio Oil Company at KCL F-1, and is only 10 miles from a pipe line owned by Richfield Oil Corporation.

At East Coalinga (Coalinga Nose) Robert Lytell Operators completed No. 31-18F for an estimated potential of 60,000 barrels of oil per day. This flow is the largest recorded in California for a number of years and comes from a 505-foot stratum of oil sand drilled to 7960 feet. During the first 24 hours it was permitted to produce 2600 barrels and then was stepped up to 4600 barrels, and will be cut back to proration regulations. This well is in an area where shallow development has been under way for 30 years.

Continental Oil Company has abandoned KCL A-3-8, Section 8-27-24, Kern County, after drilling to 13,644 feet and plugged back to 13,185 feet. Standard Oil Company recently abandoned KCL 8-B-1, a mile south of this location However, each of these companies now are starting new tests. Continental Oil Company also abandoned KCL E-1, Section 17-30-26, north of the Ten Sections field, when it failed to encounter sufficient oil sand and produced bottom water when drilled to 8574 feet.

DeSoto Oil Company will deepen DeSoto 1 in the Signal Hill field. Bottomed at 9741 feet, this deep test is slated to be carried an additional 200 feet or more to give the Lovelady area a more conclusive test.

CALIFORNIA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Athens-Rosecrans—		
Superior, Maxwell Comm. 12	950	7724
Huntington Beach—		
Southwest Explo. Co., State 1	200	4296
State 2	280	4350
Montebello—		
St. Helens, Taylor 2	557	6250
Potrero—		
Basin Oil Co., Potrero 2	600	6190
Wilmington—		
Bond Pet. Co., Mutual (LB) 1	250	3288
Kern River—		
A. Fuhrman, No. 13	10	675
Kettleman North Dome—		
K.N.D.A., 27-8Q	1450	8710
Midway-Sunset—		
Texas Co., No. 102	15	1070
Rio Bravo—		
George F. Getty, Inc., Ramsey B-3	6200	11530
Round Mountain—		
Shell, Freeman 20	281	1922
Brown-Saffold Dr. Co., Newberry 2	*	2223
Shiells Canyon—		
Texas Co., Shiells 135	117	4066
Santa Maria Old Field—		
Union, Cal Coast 12	215	3900
Ventura Avenue—		
Shell, Taylor 96	32	8930
Torrance—		
Imperial Gypsum & Oil Co., Pothoff 1	*	3747
Mt. Poso—		
Federal Dr. Co., B&G-4	*	2096
Los Olivos—		
Continental, La Laguna 2	*	5686
General, La Laguna 1	*	3834

*Failures; †Junked; ¶Million cu. ft. gas.

IMPORTANT WILDCAT TESTS

ARKANSAS

Calhoun—Samuel S. Alexander's Smythe 1, c ne ne 7-11-14, base anhydrite 2985 ft. ran electrical log, sd 3406 ft. C. E. Murdock's Southern Kraft 1, nw nw 17-14-13, sd 3291 ft. **Columbia**—Atlantic's Francis Burnett 1, c sw se 14-17-20, spd. Pet. Finance Co.'s Barnett 1, c nw se 14-17-20, dr 4538 ft. Normandie Oil Corp.'s Levi Garrett 1, ne ne 23-17-20, dr 800 ft. Standard of La.'s E. D. Harris 1, c sw ne 15-17-19, top Buckner lime 7251 ft, running 6-in OD csg, td 7442 ft, porous lime. Minnie Harris 1, c ne sw 15-17-19, mim. Tidewater Associated & Seaboard's J. T. Beene 1, c se nw 15-18-19, elev 232 ft, top lower Marine 5886 ft, coring 8005 ft. Southwood Oil Co.'s Levi Garrett 1, c sw sw 13-17-20, dr 3672 ft. **Craighead**—Tenn-Ark, Inc.'s Martin 1, 35-14n-3e, ruct, td 1754 ft. **Hot Springs**—J. H. James, Tr.'s Sturgess Lbr. Co. 1, sw sw se 26-6s-18w, rur. **La Fayette**—Wadley Erwin et al's G. W. Taylor 1, c ne sw 15-19-26, spd. Shell Pet. & Ohio's Warren 1, c se se 13-16-24, mim. (Permian lime test). **Little River**—Barbere et al's Mills 1, se sw nw 18-12-29, ru and sd. Clark et al's Strawn 1, se sw 20-10-32, dr 215 ft. Hartford Oil Corp.'s Denning 1, ne ne sw 6-13s-30w, sd 1735 ft shale. D. L. Hersey et al's W. D. Waldrop 1, se nw 4-13-31, top anhydrite 2208 ft, arr deepen 3446 ft. **Lonoke**—Cabot Drlg. Co.'s Cabot Townsite 1, 18-4n-9w, sd 2420 ft. J. W. Anderson's Eddington 1, c nw ne 7-4n-9w, sd 910 ft. Hudson et al's Young 1, sw nw 8-3n-7w, sd 225 ft. J. F. Russell's J. T. Gunter 1, se se 17-5-10, sd 1650 ft. **Mississippi**—Benedum & Trees Oil Co.'s Winston Mack 1, nw sw 3-15n-12e, dr with ct 3410 ft, hd lime. **Pike**—Bruce E. Wallace's Tilyou 1, ne se 26-8s-24w, fsg 395 ft. **Union**—Fohs Oil Co.'s Craig 1, c se ne 5-18s-14w, elev 251 ft, top lower Marine 4608 ft, coring 6095 ft.

ALABAMA

Barbour—H. A. Stebbinger's Mrs. Alyce Robertson 1, ne ne 19-10-26, ru and sd. **Choctaw**— Joe Modisett et al's McCorvey 1, se sw sw 20-9n-2w, owdd 7520 ft. **Greene**—R. T. Jeffrey's R. C. Lett 1, 3-20n-2e, sd 720 ft. **Lawrence**—Mid-Southern Pet. Co.'s Rob Jacobs 1, sw se 11-7-7, ruct. **Mobile**—J. C. Prine's King 2, ne ne 4-1n-4w, sd 1120 ft.

CALIFORNIA

Los Angeles—W. E. Entrikin's D-1, 7-3-13, dr 4030 ft. Royal Land Corp.'s 1, 8-4n-17w, dr 1235 ft. Richfield's Dominguez Estate 1, 2-4-13, dr 5275 ft. D. H. B. Oil's Heath 1, 34-3-11, sd 6150 ft. John McKeon & Assoc.'s Carmenita 1, 21-3-11, r 8956 ft. Mojave Pet.'s Gorman 1, 5-8n-18w, r 450 ft. Mojave Pet.'s Jennings 2, 33-5-14, dr 260 ft. Continental's Newhall 1, 20-4-17, dr 2371 ft. Mangrum & Page's Lintz 1, 4-3-15, dr 89 ft. Newhall Drilling Assoc.'s Needham 4, 13-3-16, redr 2700 ft. Palmluck's No. 1, 23-3-16, sd 25 ft. Rolling Hills Pet's Weston 1, 27-4-14, dr 5100 ft. Treasure Oil's Venice 7, 34-3-15, swbg 6511 ft. Tide Water's Porter 1, 27-3-16, P. P. 272 bbls daily, 5393 ft. The Texas Co.'s Anderson-Spring 1, 9-2-15, dr 6825 ft. R. T. Grady's Sepulveda 1, 23-5-14, dr 315 ft. Hogan Pet.'s Burkhard 2, 6-5-13, dr 2860 ft. Security Land & Water's No. 1, 8-2-11, sd 2247 ft. H. C. Oil's Joyce 1, 22-2-11, rur. **Orange**—New Fields Oil's No. 1, 16-5-11, sd 4100 ft. Shell's Irvine 1, 6-7-9, dr 1543 ft. A. V. Oil & Gas No. 1, 16-6-10, sd 4751 ft. Shell's Dunford 1, 22-3-9, dr 755 ft. **San Bernardino**—Carbon Canyon Oil's Schuh 1, 30-2-8, rig. Southern Counties Pet. & Drlg. Co.'s Los Serranos 1, 22-2-8, dr 2700 ft. **San Diego**—Dauphin Dev. Corp.'s Irwin Kelly 1, 16-12-4, fsg 805 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million feet of gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
bs—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so&g—*show oil and gas.*
fsg—*fishing.*	spd—*spudding.*
ft—*feet.*	sr—*straight reaming.*
hfw—*hole full of water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

SAN JOAQUIN VALLEY

Fresno—Robert S. Lytle's (formerly Petroleum Securities Company), No. 37-7F, 7-20-16, foundation. Same, No. 88-7F, 7-20-16, dr oil sand 7953 ft. Same, No. 31-18F, 18-20-16, dr siltstone, running tubing 7475 ft. Same, No. 71-18F, rig. Standard's No. 71-13C, 13-20-15, rig. Same, No. 1-17F, 17-20-16, dr sand and shale 3818 ft. Superior's Cagle 1, 6-20-16, dr sand and shale 2340 ft. Coalinga Fee 2, 7-20-16, dr sand and shale 6241 ft. American Oilfields' Investment 1, 16-19-15, sd 180 ft. Progressive Oil's California 3, 20-19-15, rur. Stuart Oil's Stuart 1, 12-21-14, dr blue shale, streaks sand 990 ft. Tide Water Associated's Fleishacker 57-1, 1-19-15, r 6522 ft. Dauphin Development's Ragan 1, 19-21-14, dr shale 4425 ft. Cyrus Pierce's Shorb 1, 16-14-12, sd 1510 ft. **Kern** — California Exploration's California Lanes Dougherty-Salisbury 1, 7-29-24, fsg 8671 ft. Shell's KCL B-87-4, 4-30-25, fsg cones 9768 ft. Gibson Oil's Alferitz 3, 14-25-18, bailed oil 1230 ft. G. E. Renner's R. H. L. 2, 27-30-30, running formation test 2275 ft. Richfield Oil's Tupman-Western 1, 32-30-25, completed 8674 ft initial production of 5040 bbls daily 8677 ft. Shell's KCL A-58-8, 8-27-6, dr coarse sand light oil show 8893 ft. Texas Co.'s Camp-West-Lowe 1, 7-29-27, redrilling 9137 ft, to 10,122 ft. Richfield Oil's KCL 1, 28-11-20, dr sand and shale 8434 ft. Tide Water Associated's S. P. 2, 15-11-19, dr sand and shale 3229 ft. Superior's KCL 12, 3-30-26, dr snd and shale 6182 ft. D. D. Angle's Claflin 2, 10-27-27, sd 2169 ft. Barnhart-Morrow's Smith 1, 34-27-27, dr gray sand 1700 ft. Milburn Violette's Violette 1, 27-26-28, dr sand and shale 1125 ft. Western Exploration's Hyde 1, 32-26-28, lcn. Julius Freid's No. 1, 34-32-24, to run casing 5035 ft. Continental's KCL E-1, 17-30-26, redrilled 8233 ft, swabbing and flowing by heads, td 8574 ft. Richfield Oil's Union Avenue 1, 6-30-28, dr brown shale 8031 ft. Continental's KCL A-4-8, 8-27-24, foundation. Standard's Mushrush 1, 7-27-4, si 13,139 ft. Same, Mushrush 2, 7-27-24, foundation.

COASTAL COUNTIES

Santa Barbara—Litho Oil's Rhode Island Estate 1, 4-4-30, lcn. Douglas-Stratton's No. 1, 8-8-33, dr brown shale oil in fractures 6945 ft. Richfield Oil's Tinaquaic 1, 36-9-32, dr sand and shale 2150 ft. Barnsdall's Pezzoni 1, 15-8-32, sd 4494 ft. J. E. O'Donnell's Helen 1, 8-7-33, preparing to plug and test higher 4998 ft. Continental's La Laguna 2, 25-8-31, abd 5686 ft. General Petroleum's La Laguna 1, 6-7-30, abd 3834 ft. Oil Group's Williams 1, 16-4-26, rur. **San Luis Obispo**—California Petroleum Production's Irons 1, 19-10-24, co 1550 ft, td 1710 ft. Epco, Inc., Epco 1, 27-26-13, dr hard shale and sand 2110 ft. **Ventura**—High Mesa Oil's Butcher 1, 16-4-22, repairing rig 1750 ft. Claran Oil's Hardison 1, 22-4-20, dr hard sand 1650 ft. Commander Oil's No. 7-F, 13-4-19, co 575 ft. Crystal Oil's Crystal 1, 35-5-20, skidding rig, old bottomed 175 ft. Merchants Petroleum's Cochrane 8, 1-4-20, dr oil sand and shale 1390 ft. St. Louis Oil's Williamson 1, 1-4-20, wocs 1625 ft. El Rancho Oil's Elkins 2, 9-3-19, rig. Texas Co.'s Shiells 136, 4-3-19, foundation. Section 20's No. 1, 20-5-19, dr shale and oil sand 2358 ft. Hardison & Temple's No. 1, 22-4-21, wocs 656 ft. Stallings, Senter & Ahlburg's Stallings 1, 24-4-21, pumping wter 1445 ft. Ventura Drilling's Canet 1, 10-3-23, dr sand and shale 1880 ft. Ventura Exploration's Sexton 1, 30-3-22, co to retest 9511 ft.

NORTHERN CALIFORNIA

Colusa — Empire Oil & Gas Corporation's Seaner 1, 15-15-4, lcn. **Monterey**—A. A. Anderson's Hillman 1, 15-24-14, wocs 4004 ft. L. B. Tannehill's Quinn 1, 35-20-8, sd 2590 ft. **Solano**—Richfield Oil's Potrero Hills 1, 10-4-1, preparing to co to 3250 ft, td 5334 ft.

FLORIDA

Levy—Fla. Discovery Oil Co.'s Sholtz 2, sw sw ne 9-15s-13e, top chalk 3110 ft, gas odor 3853 ft, arr core 4028 ft. **Nassau**—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw nw se 19-4n-24e, elev 110 ft, dr plug 4508 ft, no recent report. **Polk**—Edw. A. Hill's Polk County Lbr. Co. 1, nw nw ne 32-25s-25e, dk. **Suwannee**—J. W. Phillips Oil Expl. Co.'s Shilkett 1, nw nw 14-4s-14e, spd and sd. Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, sd 203 ft.

KANSAS

Barton—Carlock & Atlantic's Demel 1, ne nw 30-17-13w, co 2835 ft. Long & Johnson's Eveleigh 1, sw ne 3-18-14w, ur 6-inch 3115 ft. Murfin et al's Birzer 1, ne sw 21-19-11w, dr 1425 ft. **Cowley**—Henderson's King 1, nec 22-31-4e, sd 700 ft. **Ellis**—Sinclair Prairie et al's Mary Prusa 1, sec 20-16-11w, dr 2535 ft. **Kingman**—Duwe & Farris et al's Kimminan 1, ne nw sw 12-30-9w, dr 2000 ft. **Graham**—Continental's Putnam Inv. Co. 1, cwl sw 3-9-21w, cellar. **Greenwood** — Reed, Trustee's Shell 1, nw se 17-28-11e, dr 1000 ft. **Harvey**—Derby & Gary Drl. Co.'s Jones 1, cel ne nw 7-22-1w, pb to 3300 ft, to recement. **Marion**—Cox & McGinnis & Saco Oil Co.'s Jolliffe 1, c s½ sw se 2-22-5e, sd 2045 ft. **McPherson**—Marylyn Oil Co.'s Dixon 1, nw ne nw 7-19-2w, co 2800 ft. **Ness**—Carlock & Cullum's Smith 1, c sw se 11-17-25w, dr 4280 ft. Oriental Oil Co.'s Beardslee 1, nec 21-18-25w, lcn. **Ottawa**—Babcock's Copeman 1, cnl s½ s½ se 7-10-2w, co 2842 ft. **Rice**—Cities Service et al's DeWitt 1, csl ne 33-19-9w, dr 350 ft. Tatlock's Proffitt 1, sw se sw 12-20-10w, dr 450 ft. Tatlock's Proffitt 1, sw ne 23-20-10w, dr 1800 ft. Virginia Drl. Co.'s Clawson 1, sw nw 17-20-11w, dr 1500 ft. **Rooks**—Producers' Ham 1, sw nw 25-7-19w, co 2500 ft. Phillips' Tangey 1, c nw sw 25-8-18w, cemented 5-inch 3418 ft, testing. Darby Pet. Corp.'s Peavey 1, nw ne 24-11-18w, dr 2845 ft. **Rush**—Cities Service's Hall "D" 1, c nw¼ 2-12-17w, dr 2425 ft. **Russell**—Nelson's Polcyn 1, sd 31-13-15w, dr 1925 ft. Phil-Han's Weimeister 1, swc 18-14-13w, sw 3230 ft, to pb. Yankey & Stearnes' Krog 1, nw se nw 7-15-13w, pay 3324-3327 ft. Wakefield's Meharg 1, sec 16-15-13w, lcn. Southern, Inc.'s Sellens 1, swc 22-15-13w, td 3377 ft, pb 3330 ft. **Woodson**—Monarch Royalty Co.'s Central Life Ins. 1, se nw nw 29-26-14e, sd 1175 ft.

SALE OF OIL AND GAS LEASE—United States Department of the Interior, General Land Office, Washington, D. C. Notice is hereby given that the NE¼ NE¼ Sec. 13, and the NW¼ NE¼ Sec. 25, T. 21 N., R. 10 W., La. M., 80 acres in the Cotton Valley oil and gas field, Webster Parish, Louisiana, is offered to the responsible qualified bidder of the highest bonus per acre under section 17 of the leasing act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in circular 1386, at the sale to be held in the Federal Court Room, Post Office Building, Shreveport, Louisiana, at 10:00 o'clock A. M., on January 5, 1939. The successful bidder must deposit on the day of the sale a certified check on a solvent bank, or cash, for one-fifth of the amount of each bid and file the showing of qualifications to receive a lease, required by section seven of General Land Office circular 1386. The remaining four-fifths, together with the annual rental in advance at the rate of $1.00 per acre, must be paid prior to the issuance of a lease. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior.

FRED W. JOHNSON, Commissioner.

NORTH LOUISIANA

Bienville—Ark. La. Gas Co.'s Davis Lbr. Co. B-1, sw nw sw 7-16n-4w, elev 295 ft, chalk 2526-2791 ft, massive anhydrite 5393-5639 ft, tested est 50 mil ft gas 5844-76 ft, tested sw 6185-6203 ft, cemtd 5½ in csg 7166 ft, perf csg tested sw 6860-80 ft, also 6900-6390 ft, used 2000 gals acid, arr pb, td 7201 ft. Ark. La. Gas Co.'s Gayoso 2, sw se 14-16n-10w, woc surf csg 196 ft. Producers O&G Co.'s Graves-Thomas 1, se sw se 23-15n-10w, woc 180 ft. **Caddo**—Ark. Fuel Oil Co.'s F. F. Webb 1, c nw sw 4-16n-13w, elev 168 ft, massive anhydrite 4355-4615 ft, coring 5608 ft. shale and lime. Colonial Corp.'s Thigpen-Herold 1, ne sw 34-22n-16w (6000 ft test), 9⅝ in csg 1500 ft, dr 3855 ft. J. Thos. Driscoll's Woolworth 1, se se 19-18n-14w, woc surf csg. Harry Hanbury's Loe 1, se sw 23-18n-14w, spd, woc 9⅝ in csg 1325 ft. C. D. Loe's Lionel Meyer 1, sw se 33-18n-14w, elev 224 ft, massive anhydrite 4390-4660 ft, tested sw 5632 ft, pb perf 5600 ft, tested sw, perf 5594-98 ft, swabbing oil and sw, old td 5632 ft. J. Weil's Dreyfuss 1, sw sw 20-18n-14w, lcn. R. O. Carter et al's Marks Meyer 1, 34-18n-14w, lcn. R. E. Allison's Mabry-Jones 1, se se 21-18-14, dr 3850 ft; Ellerbe 3, sw ne 28-18n-14w, rur; Ellerbe 4, nw ne 34-18n-14w, rur.; Ellerbe 5, 35-18n-14w, rur. J. T. Parks et al's Grayson 1, se se 30-19n-15w, woc surf csg. Rodessa O&G Co.'s Chandler 2, nw se 34-18n-14w, rur. Ablon & Edmonson's R. Hayle 1, sw nw 20-18n-14w, mim. Oils' Inc.'s Cazaux 1, 16-16n-13w, elev 203 ft, 8¼ csg 2700 ft, owdd 3502 ft. **Catahoula**—Sibley-Sabine Oil Corp.'s Peck 1, 36-10n-8e, sd 2890 ft. **Claiborne**—E. T. Oakes et al's E. C. Kilgore 2, nw se 28-21n-5w, cored 9 ft saturated Pettit lime 7-in csg 5288 ft, re-testing after repairing leaking csg, td 5317 ft. **De Soto**—S. S. Alexander's Stell A-1, ne ne 5-12n-16w, elev 252 ft, top Washita 2710 ft, flowed oil and made 2 mil ft gas, pumped 3 to 5 bbls oil daily at 2761 ft, dr 2895 ft. **Madison**—Continental Oil Co.'s Singer Mfg. Co. 2, c 2-15n-11e, elev 77 ft, top Cockfield 540 ft, top Sparta 1610 ft, top Wilcox 2575 ft, dr 4190 ft, sandy shale (Wilcox). **Red River**—Magnolia's Pugh 59, se nw 12-12n-11w, elev 140 ft, top lower Cretaceous 2592 ft, top anhydrite 4725 ft, dr 5784 ft. N. W. Hunter's M. LeLong 1, nw nw 33-12n-10w, dr 2689 ft. **Sabine**—Earl Fox et al's Cook Ld. Co. 1, se nw 1-9n-12w, owdd 3655 ft. LeGrande et al's Tatum 1, nw ne 17-8n-13w, 700 ft oih arr pump, td 2340 ft. Tropical Oil Co.'s Long-Bell 1, 5-8n-13w, arr deepen 3507 ft. Zwolle Synd.'s Mansfield Hdw. Co. 1, ne ne 8-7n-13w, tested dry at 3860 ft, pb and testing Zwolle chalk 2120 to 2260 ft. **Tensas**—H. B. Schumacher's Mounds 4, 39-11n-12e, arr make test, td 2450 ft. **Webster**—Magnolia's Pardee C-1, c nw ne 17-23n-11w, elev 203 ft, dry so 6025 ft, top Travis Peak 6054 ft, top lower Marine 7998 ft, cored 6 ft sand, sd 8504-10 ft, dr 9783 ft. H. M. Branton 1, ne sw ne 6-22n-9w, elev 226 ft, top anhydrite 4225 ft, setting 9⅝ in csg, td 5995 ft. Roseberry-Bailey 1, se 29-23n-9w, mim. Union Prod. Co.'s Walker-Morgan 1, c se 30-18n-8w, dr 3490 ft.

SOUTH LOUISIANA

Assumption—Humble's Milliken & Farwell 1, Labadieville area, 15-14s-14e, dr shale 3109 ft. **Calcasieu**—Humble's Miller 1, Chalkley area, 32-11s-6w, dr shale 8008 ft. **Cameron**—Federal Royalty Co.'s State 2, Calcasieu Lake area, 13s-9w, sd. Pure's Calcasieu National Bank 3, Lowry area, 19-12s-4w, woo 8051 ft. **Iberia**—Texas Co.'s State 5, Fausse Point, 35-11s-8e, dr shale 7802 ft. **Iberville**—California Co.'s Schwing Lbr. & Shingle Co. 1, Bayou Sorrel area, 96-10s-10e, canal. **Lafourche**—Texas Co.'s LaTerre 1, Golden Meadows, 1-20s-21e, testing 8967 ft; same operator's State 1, Golden Meadows, 77-19s-21e, dr water sand 2790 ft. **Orleans**—W. T. Burton's State 1, in Lake Ponchartrain, 10s-13e, dr water sand 9465 ft; same operator's Faubourgde Monteluzin 2, Lake Ponchartrain, 11s-13e, dr shale 9434 ft. **St. Bernard**—Gulf's State RR 4, Lake Borgne, 12s-15e, dr shale 7756 ft. Vendome Pet. Corp.'s Kennelworth 1, Shell Beach, 59-13s-14e, ru. Wm. Helis' Nunez 1, Chalmette area, 34-12s-12e, dr shale 1870 ft. **St. James**—Shell's Schexneyder 1, LaPice area, 38-12s-15e, dr shale 2100 ft. **St. Martin**—Shell's Burdin 1, West Lake Verrett, 15-14s-12e, woc 9833 ft. Texas Co.'s St. Martin Land Co. 11, Henderson 21-8s-7e, woc 8070 ft; same operator's State 6, Lake Mongouloui, 10-10s-9e, dr shale 10,125 ft. **Terrebonne**—Texas Co.'s Continental Land & Fur Co. 1, Lake DeCade, 29-18s-14e, woc 10,075 ft; same operator's State 2, Caillou Bay, 22s-14e, driving piling.

MICHIGAN

Allegan—Cook's Stevens 1, 12-1n-16w, sd 1150 ft. Leighton's Martin 1, 9-2n-15w, dr 4510 ft. Kirkham's Manson 1, 21-1n-15w, dr 1050 ft. Michler's Harlan 1, 27-1n-12w, rig. Ramblyn's Gilmore 1, 36-2n-12w, rig. Sowell's Arbanas 1, 8-3n-11w, Traverse 1770 ft, so 1775 ft, sd 1820 ft. Leonard Prospecting's Pifer 1, 34-3n-11w, rig. **Arenac**—Bartlett's Clement 1, 6-18n-4e, Dundee 2779 ft, fsg 2315 ft. **Barry**—Collin's Simmons 1, 3-4n-10w, Traverse 1870 ft, so 1940 ft, sd 1942 ft. Yankee Spring's Royes 1, 14-3n-10w, dr 1850 ft. **Bay**—Gulf's Bateson 1, 2-14n-4e, sd 3092 ft. **Calahoun**—Verona's Fruin 1, 29-1s-7w, dr 2500 ft. **Clare**—Daily's Thomas & Rand 1, 28-20n-6w, wocs 6-in 1712 ft. **Crawford**—Weber's Floeter 1, 31-25n-1w, dr 2400 ft. **Clinton**—McDonald's Koeppen 1, 19-6n-3w, dr 2598 ft. **Gladwin**—Bridger Basin's State 1, 29-19n-2e, wocs 5-in 3307 ft. **Huron**—Leonard's Milling Co. 1, 10-16n-15e, dr lime and shale 4477 ft. Teater's Kerr 1, 27-16n-13e, dr 1600 ft. **Isabella**—Gulf's Hauck 1, 13-15n-5w, Monroe 3790 ft, coring 3795 ft. **Leelanau**—Lupher's Wilce 1, 34-28n-4w, dr 760 ft. **Mackinac**—Van Kuren's Hiawatha 2, 27-44n-9w, dr 850 ft. **Macomb**—Johnson's Przbyla 1, 1-4n-14e, lcn. **Midland**—Andrews' Harris 1, 14-16n-1e, dr 890 ft. Weller's Hepinstall 1, 9-13n-2e, dr 1600 ft. Teater's Chandler 1, 35-16n-2w, dr 300 ft. **Missaukee**—Moser's Scherenheim 1, 36-23n-7w, dr 850 ft. **Ogemaw**—Rowmor's McBain 1, 27-21n-1e, Dundee 3285 ft, dr 3307 ft. Caldwell, Inc.'s State 9, 6-21n-3e, dr 2000 ft. **Osceola**—Champion's Ealy 1, 30-20n-8w, dr 840 ft. Franklin's Johnson 1, 26-19n-7w, dr 2900 ft. Devonian's Reddy 1, 10-18n-7w, dr 760 ft. **Otsego**—Summer's Geraldine 1, 28-30n-3w, sd 1700 ft. Snow trustee's Moore 1, 13-29n-2w, Traverse 1658-1700 ft, sd 2200 ft. **Ottawa**—McClanahan's Kooyers 1, 2-5n-15w, dr 1218 ft. Kehlet's Dunton 1, 19-5n-15w, sd 670 ft. Redman's Alfen 1, 36-5n-13w, rig. Gordon's Homick 1, 23-7n-15w, dr 60 ft. **Van Buren**—Messel's Conkling 1, 26-4s-16w, dr 990 ft.

MISSISSIPPI

Calhoun—L. C. Lucas' E. C. Boland 1, sw se 9-22n-9e, top Selma chalk 738 ft, dr 792 ft, chalk, hole caving. **Clarke**—J. L. Ryan's M. Eddins 1, sw sw 29-2n-14e, spd 10-in csg 79 ft, dr 500 ft. **Hinds**—Cleve Love et al's S. F. Johnson 1, ne se 29-6n-1w, elev 343 ft, cored sand 5144-50 ft, ran electrical log to 5150 ft, sd 5218 ft sand. **Pike**—A. N. Simpson et al's Cupit 1, 25-2-7, rur. **Simpson**—Cleve Love et al's N. E. Garner 1, sw ne 1-10n-17w, woc 10-in csg 210 ft. **Yalabousha**—Chas. W. Crader's Jno. Bruce James 1, ne ne 24-11s-6w, arr set surf csg. Griffin & Melvin's Smith-Warren 1, nw se 6-24n-6e, mim.

OKLAHOMA

Alfalfa—Acre & Lee's Atchison 1, c nw ne 13-24n-11w, pits. **Beckham**—McWhirter's Fee 1, nw sw sw 34-8n-19w, dr 2186 ft. **Cleveland**—Burke-Greis' Alberts 1, se sw sw 19-7n-1w, cellar. Nels-Burrton's Hirsch 1, nwc ne 17-9n-2w, testing. Big Chief Drl. Co. & Gulf's Stragier 1, nwc sw 25-9n-2w, fsg 7190 ft. **Grady**—Carter's Smith 1, c se sw 25-5n-8w, dr 5550 ft. **Hughes**—Phillips' Beeker 1, ne nw sw 8-5n-10e, td 5639 ft hf fluid. Mandler 1, se sw sw 1-6n-10e, dr 4550 ft. Wood's Aldridge 1, sw nw ne 5-8n-8e, dr 175 ft. **Kay**—Hamilton's Riddle 1, nwc 3-26n-4e, dr 3035 ft. Tidewater Associated's Hickman 1, nwc ne 19-28n-1e, pb 2222 ft, testing. **Kiowa**—Emerson's Handcock 1, sec ne 26-6n-15w, dr 550 ft. **Lincoln**—Starr O&G Co.'s Georgia 1, se sw ne 35-18n-4e, pits. **Noble**—Hollenback et al's Mathews 1, c sw nw 9-20n-1e, sd 5225 ft. Phillips' Robertson 1-A, nw ne sw 29-24n-1w, dr 4365 ft. **Okfuskee**—Mead Prod. Co.'s Pine 1, swc nw 14-12n-11e, td 2660 ft. **Oklahoma**—Walters et al's Olmstead 1, c e½ se nw 12-14n-3w, pits. **Payne**—Starr et al's McKenzie 1, swc ne 13-18n-3e, fsg 2170 ft. **Pawnee**—Kelly's Hill 1, swc se 1-21n-5e, dr 1150 ft. **Pontotoc**—Casey's Pace 1, swc ne 14-2n-7e, dr 450 ft. Patsy O&G Co.'s Spence 1, nw se se 19-2n-8e, dr 1500 ft. **Sequoya**—Thompson Bros.' Ruby 1, nwc ne 30-12n-22e, rur. **Stephens**—Phillips' Culbertson 1, nwc se 4-1n-5w, sd. **Washita**—Continental's Proctor 1, cnw¼ 28-10n-20w, dr 9900 ft.

WEST TEXAS

(This report is confined to the south and east portion of the Permian basin and the Delaware basin.)

Brewster—H. D. Wilcox et al's W. H. Kokernot 1, nw sw sec 12, blk C, J. V. Massey sur, temp abd 2328 ft. **Coke**—Barnett Pet. Corp.'s J. E. Mims 1, sec T&P sec 39, blk W, elev 2352 ft, td 1861 ft, used 500 gals acid, sd repairs. **Concho**—A. J. Hennings, Jr. et al's A. E. Jones 1, near nwc 300-ac tr, sec 1879, dr 1445 ft. John W. Westbrook et al's Jim Rice 1, swc T&NO sec 18, fsh 645 ft. **Crane**—Gulf Oil Corp.'s W. N. Waddell et al 9, c ne ne PSL sec 7, blk B-27, elev 2545 ft, coring 5735 ft. Standard of Texas' University 1-6, sw se ne sec 6, blk 30, elev 2658 ft, top anhydrite 1135 ft, top salt 1220 ft, top Yates 2140 ft, first pay 3155-65 ft, shot 670 qts 3127-3270 ft, flows by heads. **Crockett**—H. W. Black-Eubanks Oil Co.'s University-Humble 2, se sw nw sec 13, blk 14, elev 2316 ft, top Yates 760 ft, shot 140 qts 1325-86 ft, pumped 93⅓ bbls initial. Gilcrease Oil Co.'s University-Humble 1-13, nw nw sw sec 13, blk 14, dr 115 ft; University-Humble 2-16, near sw se se sec 16, blk 14, dr 1080 ft. Stanley Lewis et al's A. C. Hoover 1, se sw ne GC&SF sec 2, blk 1, elev 2221 ft, dry and abd 1483 ft. **Culberson**—J. E. Fitz-Patrick et al's Wm. Cameron & Co. 1, c nw nw PSL sec 24, blk 81, sd 945 ft. P. W. Lewis et al's Niehaus 1, se se ne PSL sec 13, blk 109, elev 3955 ft, top Delaware lime 1178 ft, sd 3507 ft. H. J. W. Niehaus et al's C. M. Caldwell 1, se nw PSL sec 15, blk 109, elev 3878 ft, top Delaware lime 1165 ft, top sand 1215 ft, sd 2500 ft. L. G. Sheddan et al's S. J. Isaacs 1, center PSL sec 25, blk 52, sd 280 ft. **Jeff Davis**—H. F. Wilcox O&G Co.'s Jones-Coffield 1, nec H&TC sec 121, blk 4, elev 4537 ft, temp abd 3747 ft; Jones-Coffield 3, s½ H&TC sec 308, blk 4, dk. **Ector**—Bert Fields-Ben Rogers' R. H. Speer-Owenwood 1, sw nw ne T&P sec 6, blk 44, T-2-S, elev 3205 ft, top Yates 2810 ft, top brown lime 3870 ft, top solid lime 4035 ft, td 4501 ft, used 2000 gals acid, small show oil, dry and abd. **El Paso**—Tri-State Oil Co.'s Kinkel Bros. 1, nec sec 237, S. F. No. 7232, elev 3977 ft, sd 3571 ft. **Fisher**—Daube Bros. et al's A. C. Bennett 1-A, nw se ne H&TC sec 51, blk 2, elev 2008 ft, dry and abd 3698 ft. **Glasscock**—Crusader Pet. Co. Inc.'s A. D. Neal 1, se ne se T&P sec 20, blk 33, T-3-S, elev 2686 ft, dr 1950 ft. **Tom Green**—Spinner Oil Co.-H. L. Fannin's B. Reed 1, sub-div 39, Mayson-Perry sur, elev 1992 ft, rig burned, sdo 5118 ft. B. C. Mann et al's Ike Funk 1, c e½ sw nw H&TC sec 38, blk 5, elev 2371 ft, sd 1190 ft. J. B. Watson et al's Llano 1, sec 16, Llano C.S.L. sur, elev 1960 ft, dry and abd 705 ft. **Howard**—S. S. Owens et al's D. S. Wright 1, nw se se T&P sec 33, blk 33, T-3-N, elev 2747 ft, hfw 2960-69 ft, sdo 2983 ft. **Hudspeth**—Haymon Krupp Oil & Land Co.'s K. S. Briggs 1, nwc T&P sec 24, blk 73, Tsp. 7, elev 4016 ft, hfw 5363-64 ft, sdo; S. J. Thaxton 1, near sec ne se T&P sec 34, blk 74, Tsp. 6, top gray lime 4580 ft, dr 5175 ft. **Menard**—Lee Pet. Co.-C. D. Hagerty's Jas. Callan 1, swc e½ of J. M. Franz sur, sec 36, elev 2026 ft, show gas, sd 1270 ft. **Mitchell**—Ajax Drl. Co. et al's Schuster 1, swc S.P. sec 25, blk 17, cem sur pipe. **Nolan**—Chas. E. Peddicord et al's C. H. Tipton 1, near sw nw sw T&P sec 43, blk 19, sd 2827 ft. Union Oil Co. (Nevada's) J. D. Pepper 1, nec T&P sec 57, blk 21, elev 2204 ft, dr 3095 ft. **Pecos**—E. B. Carruth et al's J. R. Triplett 1, near c of e line GC&SF sec 4, blk 194, lcn abd. Cox & Moore's White-Baker 1, c sw se T. C. sec 43, blk Z, sd 1805 ft. Geo. T. Abell et al's F. Baldwin-State 1, swc lot 1, H&GN sec 24, blk 9, mim. Ed. Falvey et al's J. C. Trees 1, near sw nw nw H&GN sec 63, blk 8, elev 2485 ft, pb fr sul w 2259-64 ft, to test oil pay 2231-50 ft. Wm. W. Gruber et al's Mrs. M. S. Sanger 1, c nw T. & St. L. Ry. sec 10, blk 135, sp and sd. Humble's A. H. Robertson 1, c nw ne T. C. Ry. sec 27, blk OW, elev 2797 ft, top red beds 1295 ft, top Rustler 2280 ft, top Delaware lime 5251 ft, top sand 5323 ft, dry and

abd 5368 ft. H. H. Sides et al's Blackstone-Slaughter 1-a, near sec T. & St. L. sec 25, blk 130, co 2160 ft. E. M. Thomasson Prod. Co.'s J. Nations 1, sec 1, blk 105, W. P. Howard sur, sd 870 ft. Stanley A. Thompson et al's Elsinore Cattle Co. 1, se se GC&SF sec 53, blk D, elev 2938 ft, lost tools 7342 ft, shot 220 qts 7038-80 ft, show gas, pb to 6904 ft to whipstock out of pipe. Trans-Pecos Oil Co.'s F. M. Gallagher 1, ne ne nw T&P sec 9, blk 51, Tsp. 10, sd 2240 ft; Popham Land & Cattle Co. 1-B, s½ GH&SA sec 235, blk 11 (3rd hole), td 2385 ft, rur. Union Oil & Mining Co.'s First Nat'l Bank 1, near nec H&GN sec 6, blk 9, elev 2410 ft, sd 1760 ft. **Presidio**—Brite Production Co.'s L. C. Brite 1, ne¼ GH&SA sec 113, blk 12, sd 5427 ft. **Reagan**—John W. Emch et al's T P Land Trust 1, c n½ s½ sw T&P sec 203, blk 1, elev 2676 ft, top anhydrite 1150 ft, top salt 1210 ft, top Yates 1570 ft, top lime 2365 ft, pb fr sul w 2752 ft to 2665 ft, used 1000 gals acid set 15 bbls oil daily, re-used acid and got water. **Reeves**—H. F. Anthony & Lagoki Oil Co.'s Richards-Shaw 1, c n½ nw PSL sec 16, blk 59, trace gas, dr 1605 ft. Ohio Oil Co.'s Popham L&C Co. 1, nw T&P sec 18, blk 54, Tsp. 10, elev 3623 ft, top Delaware lime 4938 ft, top sand 5030 ft, dr 5430 ft. **Runnels**—Rex Cannon-H. B. Goodrich et al's H. Giesecke 2, Jas. Hughes sur, No. 227, mim. J. W. McLean et al's E. H. Pflueger 1, Asa Clark sur, A-506, elev 1730 ft, dry and abd 2057 ft. H. B. Hill et al's F. R. Prusser 1, near nec 304-ac tr, J. R. Nunn sur, A-338, lcn. **Schleicher**—Lone Star Gas Co.'s B. Page-Humble 1, near c e½ nw ne GH&SA sec 30, blk L, rur; B. Page-Humble 2, c se sw sec 46, blk L, mim. H. P. Opp et al's J. T. Jackson 1, nw ne T. C. Ry. sec 41, blk LL, elev 2353 ft, ur 1428 ft. **Scurry**—H. H. Coffield & Guthrie, Inc.'s E. E. Spears 1, nw nw sw H&TC sec 130, blk 97, elev 2294 ft, top lime 1512 ft, pb fr 3543 to 2493 ft, shot 500 qts 2300-2425 ft, pump 89 bbls 29.5° oil initial; First Nat'l Bank of Snyder 1, sw sw nw H&TC sec 130, blk 97, lcn; First Nat'l Bank of Snyder 1-A, nec H&TC sec 129, blk 97, mim. Jas. T. Brooks et al's First Nat'l Bank (Snyder) 1, ne ne se H&TC sec 129, blk 97, lcn. P. G. Moran et al's F. W. Hardee 1, nwc H&TC sec 99, blk 97, elev 2234 ft, dry and abd 1100 ft. W. E. Callahan et al's First Nat'l Bank (Snyder) 1, se se ne H&TC sec 129, blk 97, top salt 670 ft, dr 1945 ft. **Sterling**—J. W. Sward et al's T. G. Brennand 1, se se ne H&TC sec 107, blk 2, elev 2535 ft, top Yates 1028 ft, top brown lime 1746 ft, top solid lime 1820 ft, sd 3011 ft. **Sutton**—Geo. Irwin et al (was A. A. Basse-S. J. Sackett et al's) W. A. Miers 1, c ne TW&NG sec 54, blk 14, elev 2307 ft, sd 302 ft. **Upton**—White & Wilson's M. B. Webb 1, sw se ne sec 176, blk E, CCSD&RGNG sur, sd 150 ft. **Ward**—J. E. Fitz-Patrick, Frank Pickrell et al's F. I. Dyer 1, w¼ n¼ H&TC sec 135, blk 34, elev 2709 ft, base salt 3845 ft, top Delaware lime 5081 ft, top Delaware sand 5100 ft, td 5144 ft, shot 200 qts 5091-5142 ft, tested little gas, sdo. Robt. E. Mitchell et al's Allen 1, H&TC sec 7, blk 32, dr 450 ft. **Winkler**—Richardson Oils, Inc.'s J. M. Bashara 1-A, sw sw se PSL sec 22, blk 77, elev 2973 ft, top anhydrite 755 ft, base salt 2260 ft, hfw 4012-19 ft, pb to shoot; Keystone-Sun 1, sec PSL sec 4, blk 77, elev 2973 ft, dr salt and anhydrite 1515 ft.

EAST TEXAS BORDER COUNTIES

Harrison—R. S. Barnwell's Mrs. Luther Smith 1, A. D. Hope sur, elev 185 ft, sd 2830 ft. W. S. King's T. J. Taylor 1, Henry Martin sur (1 mi e Karnack), spd. **Marion**—Vestal et al's Moseley 1, D. Lane sur, rur. **Panola**—E. P. Pewitt et al's Rushing 1 (751-ac), sd to install heavier rig. McDonald & Campbell's J. F. Nail 1 (61-ac), Cyrena McCreary sur, sd 2350 ft. **San Augustine**—Superior's Long-Bell 1, S. P. R. R. sur 5, dr 1260 ft. **Sabine**—Hugo Allen's Brooks 1, Isaac Lowe sur, wo 5609 ft. **Shelby**—Redditt & Gray's Pickering Lbr. Co. 2, P. J. Loggins sur, sd 4225 ft. Pundt et al's Pickering 1, W. M. Snider sur, gas blowout 4870 ft, perf csg 5050-65 ft, td 5084 ft.

SOUTH TEXAS

LAREDO DISTRICT

Bee—Bunn & Texas' Sparkman 2, Walker sur, dr 3970 ft. Chapman Mineral's Ablinger 1, Ryan sur, testing, perf above 5973 ft. **Duval**—Bradley's Richardson 1, sur 3, lcn. Fansler's Benavides 1, El Mesquite gr, cor 1755 ft. Magnolia's Duval 2, sec 189, testing on pump, td 1451 ft. Miller's Miller 1, Santos Flores gr, dr below 4100 ft. O'Hern's Benavides 1, sur 169, dr 2770 ft. S. K. & C.'s Welder 2, sur 103, sd woo, 2054 ft. **Golind**—Brock's Dial 1, Vasquez sur, dr below 3770 ft. Steinberger's Albrecht 1, Hancock sur, testing through perfs 5328-45 ft. **Jim Hogg**—Humble's Bass 3, San Rafael gr, testing 4700 ft snd, td 5274 ft. Johnson & Robinson's Palacios 1, sur 230, dr 500 ft. Navarro's Garza 1, Santa Teresa gr, prep sp. **Karnes**—Fomax' Pfluger 1, Seguin sur, sd 1969 ft last report. Karnestex' Yanta 1, Hardaway sur, dr 2779 ft. **La Salle**—Lake-Tobin's La Salle 1, sur 988, dr below 2915 ft. **Live Oak**—Southwest's Hill 1-A, Simmons subd, dr below sur csg. **McMullen**—Dovre & Brown's Nueces 1, sur 177, sp. Loma's Edrington 1, sur 79, ru. Wilkins' Rhode 1, sec 27, lcn. **Starr**—Circle's Olivares 1, sur 241, testing snd 4903-28 ft. DeWitt's Alvarez 1, por 72, dr 800 ft. Giblin's Guerra 1, por 69, dr below sur csg. Sun's Montalvo 1, sur 240, still ru last report. Transwestern's Dallas 1, sur 226, cor 4410 ft. **Webb**—Dovre & Brown's Zapata 1, sec 334, sp. Harvey & Henderson's Benavides 2, sur 459, lcn. Killam's Bruni 3, Albercas gr, lcn. Superior's Spain 1, sur 17, lcn. **Zapata**—Martinez' Laurel 1, Borrego gr, dr 1250 ft. Thompson's Ramirez 1, por 18, dr 2100 ft.

CORPUS CHRISTI DISTRICT

Brooks—Lanning & Coffield's Mestina 1, Gonzalena gr, dr 2750 ft last rept. **Calhoun**—Hiawatha's Roemer 2, Ogsberry sur, dr 9855 ft last rept. **Hidalgo**—Harding's Card 1, Hidalgo Canal Co. subd, rept testing in snd 6920-55 ft, closed well, td 7507 ft. Phillips' Flores 1, por 39, prep test through perfs in snd 5883-90 ft, pb td 5950 ft, td 9708 ft. **Jackson**—Chapman Minerals' Bennet 1, Garcia sur, dr 3500 ft. Crosby's Broughton 1, Green sur, wocs, set csg after testing oil, td 7414 ft. **Jim Wells**—Graham & Mosser's Bankers 1, La Vaca gr, testing, td 5402 ft. Graham's Hirsch 1, Stanfert sur, dr 4600 ft. Henshaw & Armoil's Martens 1, La Vaca gr, dr around 2600 ft. Magnolia's Maun 1, Ignacio de la Pena gr, dr 2200 ft. Shell's Von Blucher 1, Best sur, testing around 7558 ft, no details. Transwestern's Seeligson 1, Haldeman subd, dr below sur csg. **Kleberg**—Pure's State 1, tr 522, prep to test through perfs, no details, td 9636 ft. **Nueces**—Humble's Michalek 1, sur 97, dr 6500 ft. Seaboard's Wilson 1, Herrera gr, blew out, cratered, caught fire, rig lost, still wild last report, td 6541 ft. Stanolind's Clark 1, Herrera gr, td 6481 ft, sd, wo Seaboard's Wilson 1. Texas' Little 1, sur 59, dr sdtr hole at 5300 ft. otd 7746 ft. Union's Brown 1, Fuentes sur, dr 12,830 ft. **Refugio**—Hewitt & Dougherty's Rooke 1, Aldrete gr, prep dr plugs and test, td 5903 ft. Rutherford's Neimann 1, Lopez sur, dr 3500 ft. **San Patricio**—Graham's Moore 1, McCampbell subd (blk 73), completing through perfs, 5½-in csg at 7130 ft. Wellington's Welder 5, Hart sur, sp.

SAN ANTONIO DISTRICT

Atascosa—Stanley's Schumann 1, Malone sur, sd, td 1722 ft. **Bastrop**—Teas, Ashley & Hinton's Grizzard 1, Graham league, still wocs, td 7177 ft. **Bexar**—LeComte's Herbst 1, Leal sur, dr 1080 ft. Krumm's Kempf 1, McCulloch sur, dr 300 ft. Noake's Oppenheimer 1, Miller sur, ur, td 1005 ft. Priest's McCullough 1, Barrera sur, bailed some oil, td in sndy sh at 1004 ft. Schreiner's McCloskey 1, Desague sur, dr 875 ft. Wagner's Lamm 1, sur 3, prep sp. **Caldwell**—Lincoln's Mebane 1, Berry sur, dr 1820 ft. Stivers' Callihan 1, Roe sur, sp. **Frio**—Humble's Houston & McLean 1, sur 162, dr 5302 ft, ran electrical formation tester at 5280 ft, no details; Houston & McLean's 2, sur 161, lcn. Smith's Berry 1, sur 1, cor below 4450 ft. **Guadalupe**—Hamill & Hamill's Tewes 1, Duran sur, dr 450 ft. Holifield's Broadnax 1, King sur, sp and sd. Hueners' Bauer 1, Brown sur, sd, ds stuck, td 1017 ft. King's Rosenbrock 1-A, Duran sur, still flowing o and wtr, td 1882 ft. Wellington's Mattke 1, Smith sur, cor 1850 ft. Williams' Weber 1, G. Torres sur, sd 1483 ft. **Kendall**—Carpenter's Seidensticker 1, Rodriguez sur, prep mi csg. Graham's Werner 1, sur 781, dr below 660 ft. Reed's Marquart 1, Traviesso sur, prep resume dr, changed snd lines, td 940 ft. **Kerr**—Hart & Howell's Love 6, Martinez sur, cleaned to td, 5625 ft, prep dd. **Kimble**—Plateau's Hunger 1, sur 43, still co and testing, td 1837 ft. **Kinney**—Rose's Gaebler 2, Beales sur, dr 250 ft. Wardlow & Magnolia's Fee 1, Valdez gr, dr 1350 ft. **Lee**—Panos' Sanders 1, Roeder sur, mim last rept. Pederson' Brown 1, Hudson sur, sd 6400 ft. **Maverick**—Humble & Wellington's Indio 2, Antonio Rivas gr, dr 780 ft. **Medina**—Cromwell's Tondrie 1, Rogers sur, mi new rig, td 1336 ft. G. G. G.'s Saathoff 1, sur 844, dr 1350 ft. **Travis**—Grimes' Pearson 1, hole 2, Kimbro sur, dr ahead 490 ft. Raes & Featherstone's Jones 1, Hornsby sur, prep set csg at 680 ft last report. Wolter's Morell 1, Kemp sur, dr below 620 ft. **Williamson**—Burnette's Reed 1, Leichtle league, lcn. Smith's Rydell 1, sur 334, sd 52 ft. **Wilson**—Stapper's McDaniel 1, Manchaca sur, woo, 3061 ft.

TEXAS GULF COAST

Brazoria—Humble's Masterson 1, Anchor area, Geo. Robinson sur, dr shale 8452 ft; same operator's Tuttle 1, Iowa Colony area, H.T.&B. No. 67, abn 8221 ft. Grey & Wolf et al's Hughes 1, Fresno area, F. B. Drake sur, woc 710 ft. D. B. MacDaniel's Rowell 1, sw of Hastings, M. V. O'Donnell sur, dr shale 2165 ft. **Harris**—Carroll Oil Co.'s N. Means 1, Pearland area, T. J. Green sur, sd woo 7007 ft. C. L. Dobbin's Ridgeview Farms 1, nw of Cypress, I. B. Steele sur, dr shale 5240 ft. Jack Frazier's Carter Investment 1, Highland area, T. Patchings sur, lcn; same operator's Hornberger 1, Highlands area, B. N. Sessuins sur, abn 5226 ft; same operator's Griffith 1, Mt. Houston prospect, A. Smith sur, testing 4377 ft. **Jefferson**—British American and Merit Oil Co.'s Gladys City 1, w of Spindletop, J. A. Veatch sur, abn 7382 ft. Humble's McFaddin B-13, Jefferson Coast, in Gulf of Mexico, dr shale 3715 ft; same operator's Todd 1, w of Cheek, Wm. Carr sur, comp 651 bbls daily 7719 ft. **Montgomery**—Deep South's Foster Lbr. Co. 1, ne of New Caney, P. Bryan sur, sd 6985 ft. Housh & Thompson's Clary 1, nw of Conroe, W. S. Allen sur, comp 44,000,000 cubic ft gas daily 4739 ft. **Orange**—Sun's Lutcher Moore 1, n of Orange, B. Johnston sur, dr shale 8657 ft. **Trinity**—C. D. Davis et al's Gibson 1, n of Trinity, A. Donovan sur, dr shale 960 ft. **Wharton**—Crown Central's Babcock 1, w of Louise, S. P. Middleton sur, abn 5517 ft.

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WEST KENTUCKY CHANCE—Have 17 farms, 1760 acres all joined together under lease since 1929 rentals all paid to Oct. 1, 1939 long term leases ahead, in Greenville, Muhlenberg County, Western Kentucky Oil Basin where number McClosky pay wells have been drilled in past few years. Farms are right against major fault and within two miles of famous Brasher well, the best in Kentucky before 1937, a 1,000 barrel well paying $60.000 first year. Fine opportunity for ground floor development and will work on confidential basis with good company. I am sole owner and not any agent or lease hound.
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NEW PRODUCTS FOR THE FIELD
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WEIGHT INDICATOR
Martin-Decker Corporation

Martin-Decker Corporation, Long Beach, California, has announced a new weight indicator, to be known as the "Special." This new instrument has many unusual features never before incorporated in a weight indicator, and is particularly designed to handle extremely heavy loads, having 20 percent greater capacity than previous indicators. This feature, plus a supersensitive Vernier indicator with a capacity of 100 points, insures sufficient capacity to handle wells deeper than any thus far drilled. The Special has an unusually large dial with built-in illumination that can be clearly read from all parts of the rig floor day or night. Ten interchangeable dials nested within the case give direct readings in pounds for all commonly used string-ups and line sizes. The center dial is graduated in weight and Vernier indicator points for the convenience of those desiring to use this system.

Martin-Decker Special

Two gauge hands—a regular gauge hand and supersensitive one (six times as sensitive) enable the Special to cover all phases of drilling and production work with safety and high precision.

The entire unit is factory filled and sealed. It cannot leak, and requires no pumping up, no priming, and no attention of any kind. The use of light, tough alloys eliminates unnecessary weight and enables the Special to weigh only 60 pounds complete. Its compact construction and light weight eliminate any tendency for the instrument to swing on the deadline in rough drilling. Another important feature is the unitized leak-proof case and shatter-proof rubber sealed dial glass which completely seals the instrument against water, rain and the elements.

PORTABLE ROTARY DRILLING UNIT
Shaffer Specialty Company

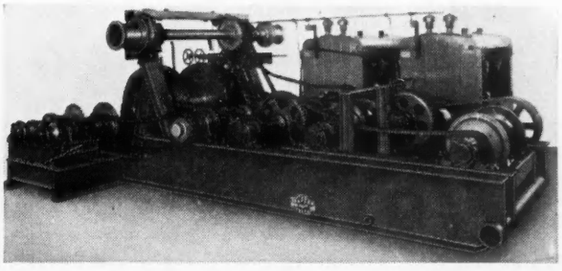
Shaffer Specialty Company, Tulsa, Oklahoma, announces its new model 250 portable rotary drilling unit, which is designed to drill 4000 feet with 3½- or 4½-inch drill pipe. Other sizes are also available; the model 400 for 6000 feet and the model 500 for 10,000 feet operations. The compact arrangement of power units, transmission drive and draw works incorporates this complete unit in two truck loads.

This unit is readily adaptable to dual installation of any make gas-gasoline, butane or Diesel engines delivering a maximum capacity of 125 horsepower each, on the model 250, requiring no alternation in mounting construction.

Levers for operating all clutches as well as compound throtttles are centralized at the driller's position. Throttle control is incorporated in a single hand wheel comparable to steam engine control.

Both engines are compounded to operate the pump, while at the same time, rotary table speeds of 35-55-75 and 110 r.p.m. are available.

This unit was designed to meet the new demands and requirements as essential to economical operation. All of the principles incorporated in this unit are the direct result of practical field experience and engineering research, and the changing trend in operation to smaller holes.


Shaffer Model 250 Portable Rotary Drilling Unit.

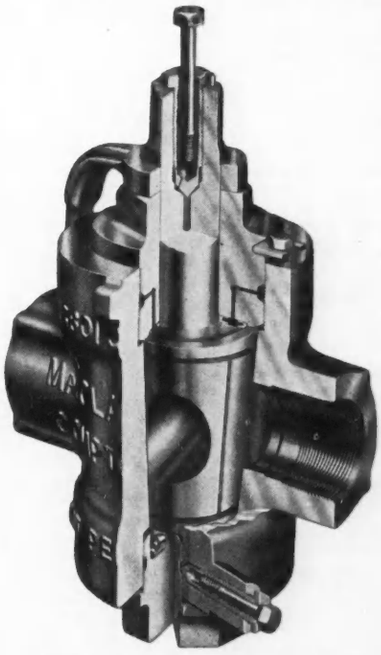
TRACTOR CHAIN
The Buckeye Traction Ditcher Company

The Buckeye Traction Ditcher Company, Findlay, Ohio, is now equipping its models 120 and 160 chain and bucket trench excavators with a new chain built up from drop-forged links with splined bushings.

In addition to the new drop-forged digging chain, both the smaller model 120 with its range of digging capacity from 16 to 30 inches trench width and to 10 feet in depth, and the larger model 160 which digs trenches to 42 inches wide and 12½ feet deep, have a number of other distinct operating advantages. One of the more important of these is the shiftable boom, which permits digging to the extreme right or left of the machine, or anywhere in between. Another feature of these machines is their ability to dig while tractioning backward.

PLUG VALVE
MacClatchie Manufacturing Company

MacClatchie Manufacturing Company, Compton, California, announces a new development in plug valve construction. This new model "Hydro-Seal" plug valve incorporates engineering advancements that eliminate packing troubles and make it leak-proof under all types of installations. One valve can be used interchangeably on chemical, gas, gasoline, oil or mud lines with equal efficiency and dependability.


MacClatchie "Hydro-Seal" plug valve

This new model Hydro-Seal plug valve is entirely grease packed. It has no metal, rubber, fabric or leather packing of any kind. Instead, two separate lubrication chambers, each equipped with the new "Lubricheck," permit positive thorough packing at all points where fluid might escape.

All the packing in this new valve can be tightened or even completely renewed from the outside while the valve is working under high pressures.

Another important feature is the arrangement of the thrust bearings. By improved design the fluid pressure has been distributed so that it tends to push the plug down instead of up. This thrust load is carried upon a roller bearing assembly, adjusted to exactly balance the thrust pressure. Thus, the higher the pressure the tighter the seal, but the plug will neither freeze nor turn hard under high pressures because it rotates upon the specially designed thrust bearing.

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This Week with the Industry's EQUIPMENT SUPPLIERS

B-J Wins Suit Involving Tongs Remade from Used Parts

Following the recent filing of a patent suit by Byron Jackson Co. in the United States District Court at Oklahoma City, the defendants, McKee Supply Company and O. B. McKee, dealers in second-hand oil well equipment at Oklahoma City, have been enjoined, pursuant to a consent decree, from continuing their practice of making up for sale oil well pipe and casing tongs employing parts of used Byron Jackson tongs, assembled with or without one or more parts made by the defendants. The decree finds that the defendants had infringed the patents of Byron Jackson Co. as follows:

"By making and selling individual parts and elements of said tongs, with the intention that the same were to be assembled in pipe and casing tongs embodying and containing the inventions of said letters patent as set forth in said claims thereof; that said defendants have infringed said patents by purchasing or otherwise acquiring used or worn out pipe and casing tongs and parts thereof manufactured, assembled and sold by the plaintiff, and by disassembling said tongs and parts into their elements, and from the parts of different tongs so disassembled, constructing and selling complete tongs and tong heads; that said tongs and tong heads so constructed and sold by the defendants do not preserve the identity of any original tongs or tong heads manufactured, assembled and sold by the plaintiff; and that the defendants have infringed all of the claims of all of the said patents above named under the guise of repairing the tongs manufactured and sold by the plaintiff, by rebuilding worn out tongs, tong heads, and parts thereof, and selling the same."

In obtaining this injunction, Byron Jackson Co. has invoked a remedy accorded by the patent laws, and which is well established by prior court decisions. This action by Byron Jackson Co. may be followed by similar action by other oil field equipment manufacturers in an endeavor to properly protect their patented lines.

Portable Rig Representative Returns From Long Journey

O. D. Small, special sales representative for Portable Rig Company, returned to Houston recently from a 10-month tour of South American fields, one of the most complete trips of its kind ever made by an oil industry equipment manufacturer's representative. Traveling via Miami, Florida, to Trinidad, thence into Eastern Venezuela and the Maricaibo Basin, Small traveled most of the trip of nearly 30,000 miles by air. From the Maricaibo Basin he went down the lake and up through the Barco Concession to Cucuta, over the mountains to Bucarmaranga, Colombia, then by rail through Aguas Claras to Porta Wilches on the Magdalena River. He then went up the river to Barranca Bermeja and El Centro, thence over the mountains by plane to Bogata. The next stop was Barranquilla, Colombia, thence to Christobal, Panama, and by plane to Quayaquail, Ecuador. From Ecuador he traveled to Talara, Peru, on to Lima and Santiago, Chile, and back over the mountains to Buenos Aires. A special side trip was made out of Buenos Aires to Commodoro Rivadavia (Patagonia), in the Argentine. He visited Mendoza and the Salta Area in Northern Argentine and Bolivia, and returned to Buenos Aires, from which point he proceeded to Rio De Janeiro, Brazil, flying over Paraguay. On his return to the United States he again visited Eastern Venezuela and Trinidad.

O. D. SMALL
Returns from South America

W. O. Bates Vice President of Caterpillar Tractor Company

W. O. Bates, Jr., who recently was transferred from the San Leandro, California, offices of Caterpillar Tractor Company, to become head of the patent department at Peoria, has been appointed a vice president of the company.

Bates is a graduate of Cornell University with a degree of Mechanical Engineering. Immediately after his graduation, he joined his father and brothers as an executive of the firm, Bates Machine & Tractor Company of Joliet, Illinois. This pioneer company, manufacturer of the "Bates Steel Mule," a track-type tractor, had been founded by his father in 1880.

During the World War, Bates was captain in the engineering division of the Ordnance Corps, and played an

important part in connection with the design and construction of tractors and gun mounts for field and coast artilleries. At the close of the war, he returned to his father's company as director of engineering and service, and continued in that capacity until 1934, although the Bates Company had been purchased by the Foote Bros. Gear & Machine Company in 1929. After leaving Foote Bros., Bates opened his offices as patent consultant, with headquarters in San Francisco and Chicago.

Longwill to be Inferno Company Vice President-Sales Manager

C. W. Longwill, secretary-manager of the Shreveport Chamber of Commerce for the last 12 years, and industrial secretary of the Chamber of Commerce at Knoxville, Tennessee, prior to that time, will be associated with The Inferno Company of Shreveport, Louisiana, after the first of the year as vice president and sales manager.

The Inferno Company manufactures steam power plant equipment and has international distribution through supply stores. The company will shortly introduce new and improved products, which the management expects will necessitate enlarged manufacturing facilities and a larger personnel.

Scott Touring Fields in South America

L. C. Scott, Dallas, Texas, Mid-Continent sales manager for the D & B Pump Company division of Emsco Derrick & Equipment Company, Los Angeles, is touring the fields of northern South America. He leaves Maracaibo soon for Eastern Venezuela and Trinidad. Scotty is reported to have fallen in love with Venezuela and to be dickering with Maracaibo real estate agents for the purchase of a home.

Hornbrook Goes to Show Peru How to Drill Slim Holes

J. W. Hornbrook of Bartlesville, Oklahoma, is leaving for Peru where he has been employed by the Peruvian government for the purpose of instructing and supervising geophysical and exploratory drilling with the use of Franks Manufacturing Corporation "Slim Hole" portable rotary and deep core drilling units.

Hornbrook, formerly core drilling superintendent for Cities Service Oil Company, has had wide experience in this field, holding many inventions as well as having conceived many of the original and useful features built into the Franks "Slim Hole" rig. He has been instrumental in no small degree in pioneering along with Franks Manufacturing Corporation of Tulsa "Slim Hole" rotary drilling units.

J. W. HORNBROOK
Slim Hole Specialist Goes to Peru

C. W. LONGWILL
To be The Inferno Company Sales Manager.

Oakite Service Divisions Hold Technical Sales Conferences

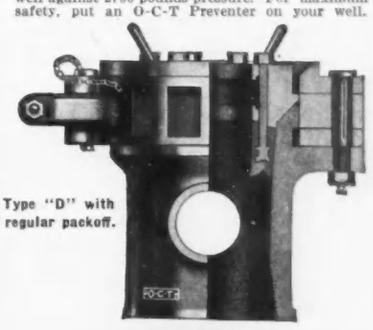
Two-day technical sales conferences are currently being held by various service divisions of Oakite Products, Inc. The essential purpose of these conferences is to keep users of Oakite materials acquainted with new developments and improvements in methods and materials that apply to their processing or plant maintenance cleaning operations.

Under the direction of Division Manager J. C. Leonard, the Chicago division convened at the Hotel Statler in St. Louis, November 18-19. The Detroit division, headed by H. C. Duggan, gathered at the Hotel Statler in Detroit, November 21-22. The Northeastern division meets at the Commodore Hotel in New York, December 2-3, with Division Manager D. X. Clarin in charge. The Philadelphia division, of which J. J. Basch is manager, is scheduled to hold their meeting at the Hotel Pennsylvania, New York, December 9-10. In addition to the 90 Oakite representatives, the conferences are being also attended by J. A. Carter, H. L. Gray, assistant managers, and E. C. Rinker and Wm. A. Allison of the Oakite Technical Research Department. Date of the West Coast Division Conference will be announced later.

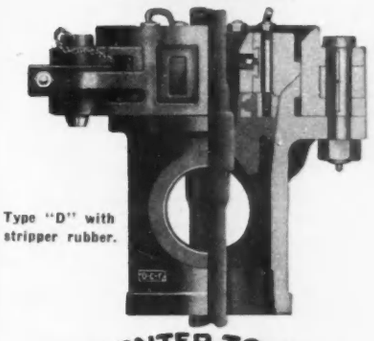
Subjects discussed include cleaning before bright nickel and chrome plating; removal of sludge, grease, oil deposits and other accumulations from Diesel crank cases and inside surfaces of gasoline and Diesel engines with a cold cleaning solution; and cleaning and anti-rusting metal parts between various fabricating operations.

RESULTS COUNT!

An O-C-T type "D" Blowout Preventer with stripper rubber, installed on a deep Louisiana Gulf Coast well, allowed the operator to rotate and run drill pipe to bottom while killing the well against 2700 pounds pressure. For maximum safety, put an O-C-T Preventer on your well.



Type "D" with regular packoff.



Type "D" with stripper rubber.

OIL CENTER TOOL CO.
QUALITY O-C-T PRODUCTS
HOUSTON, TEXAS, U.S.A.
CABLE ADDRESS "OCEANTOL"
Sold Through Supply Stores

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1917-1936
By
DAISY WINIFRED HEATH

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882 pp., free to members. Non-members, individuals, companies, and institutions may buy copies at $5.00, postpaid.

THE AMERICAN ASSOCIATION
OF PETROLEUM GEOLOGISTS
Box 979
Tulsa, Oklahoma, U.S.A.

Squeaks from the Bull Wheel

Some New Definitions

Socialism means that if you have two cows, you give one to your neighbor. Under Communism you give both cows to the government, which gives you back some of the milk. Under Fascism you keep the cows but give the milk to the government, which gives you some of it back. And under New Dealism you shoot one cow, milk the other and then pour the milk down the sink.

Decision

"I've come to ask for your daughter's hand."

"No; either you take the whole girl or nothing."

Baseball Metaphor

"You never come into the house without making an attack on that dish of doughnuts."

"That's right, mom; y'see, a home run doesn't count unless a fellow hits the plate."

The Relation May Be Strained

"Pop, you know everything, don't you?" said little Joe.

"Some very few things in the universe may have escaped me," answered the parent modestly. "But they are hardly worth mentioning. What do you want to know?"

"I want to know," replied little Joe, "what relation an august king is to a May queen?"

Hand Over

"Wives should meet their husbands half way," says a magistrate.

Many go the whole way on pay nights.

'Twas Ever Thus

"Has your wife changed very much since you married her?"

"Yes, my friends, my habits and my hours."

Truthful Answer

"Won't you walk as far as the street car with me, Tommy?"

"Nome, I can't."

"Why not?"

"Cause we're gonna eat dinner soon's you're gone."

Time to Repeat

Don't you start no fight with me, big boy. Remember Ah was decorated foh bravery in the Spanish war.

Maybe yo' was, but it done give you such a swell haid it's about ripe to be redecorated.

Romeo Miz'n

Sam held her hand and she held hiz'n
And then they hugged and went to kiz'n.
They did not know her dad had riz'n,
Madder than hops and simply siz'n;
And really 'tiz'n right to liz'n,
But Sam got hiz'n and went out whiz'n.

Polite Conversation

Archibald Percival Reginald Earl decided one evening to call on his girl.

Together they talked of their kith and their kin.

He said, "May I kith you?" and she said, "You kin."

Force of Habit

"How's the patient this morning?"

"I think he's regaining consciousness. He tried to blow the foam off his medicine."

Two of a Kind

"Wake up, John, there's a burglar going through your pants pockets."

"Oh, you two just fight it out between yourselves."

Too Coarse

"What's wrong with this cake, dear? It tastes kind of gritty."

"Don't be silly, darling. The recipe calls for three whole eggs and I guess I didn't get the shells beaten up fine enough."

Social Standing

There was a hold-up at a busy London crossing and the traffic was getting into a jam. In front of one of the waiting lines of cars and buses was a luxurious limousine, and its occupant could not restrain her impatience. Leaning out of the window she cried in imperious tones:

"Officer, I demand that you let me proceed. I am the wife of a cabinet minister."

The Scots policeman turned to her with a tolerant smile. "Lady," said he, "I couldna dae that evin if ye were the wife o' a Presbyterian meenister."

Those Shovels

The foreman on one of the WPA projects found that, due to breakage and wear and tear, he had run short of shovels; so he wired Washington, requesting that more shovels be sent to him. The next day he received a reply, which read:

"Have no more shovels. Tell the men to lean on each other."

His Oversight

"How did you order your steak, sir?"

"Orally, but I realize now I should have ordered it by mail in advance."

Spoiled His Wish

"Kin I have the wishbone, Mother?"

"Not until you've eaten your spinach."

"Yes, but I wanted to wish I didn't have to eat it."

Along in Years

"I wonder how old Miss Jones is?"

"She must be awfully old, because I heard she used to teach Caesar."

Speaking From Experience

Gee, pop, there's a man in the circus who jumps on a horse's back, slips underneath, catches hold of its tail, and finishes up on the horse's neck.

That's nothing. I did all that, and more, the first time I ever rode a horse.

Missing

"Why did you spell pneumatic 'neumatic'?"

"The 'k' on my typewriter isn't working."

Candid Answer

"You're dancing with me tonight and I suppose tomorrow you'll be making a date with some other man."

"Yes, with my chiropodist."

Inexhaustible

"Well, did you and your wife get your quarrel patched up?"

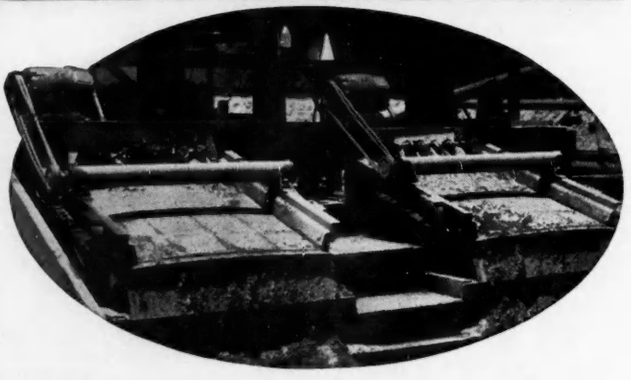
"Naw, we never patch 'em up; we start new ones."

Why Worry About It?

"Take 13½ from 29¼ and what's the difference?"

"Yeah, that's what I say, who cares anyhow."

LINK-BELT MUD SCREENS
Quickly Save their Cost



● This Link-Belt dual vibrating screen hook-up is taking shale and other abrasive materials out of drilling mud. Besides keeping destructive materials out of contact with pump parts, thus vastly reducing pump maintenance, a valuable saving in the cost of mud alone is made. For the most efficient, dependable, economical method of reconditioning rotary mud—specify Link-Belt screens. 7541

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STOP WORRYING!

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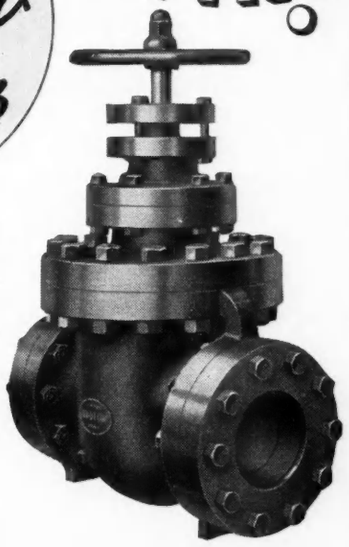

Ludlow Valves bring relief to harried engineers and purchasing agents. Using the famous Ludlow wedging principle, they effect tighter closure, last longer, cut down repair and replacement costs. It pays to specify Ludlow all the way. Write for complete Ludlow catalog of valve styles and sizes.

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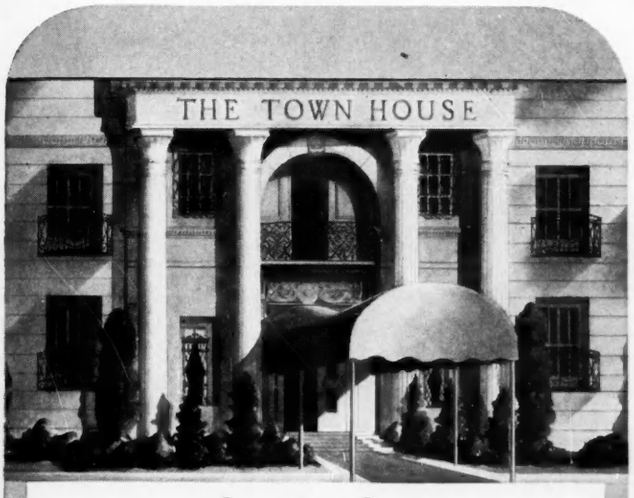

Superb Living

An address of prestige where the discriminating traveler may relax in an atmosphere of refinement. Under the same management as The Drake and The Blackstone in Chicago.

A. S. Kirkeby, Managing Director

The Town House

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LOS ANGELES

This new blade-type RIDGID cutter wheel

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Clean
Low Cost
Pipe Cutting

LIKE the blade of a good knife, this RIDGID cutter wheel blade is made of fine tool steel — for more cutting power and stamina. Where ordinary wheels are cut from bar stock, RIDGIDs are coined from tool steel sheets, hammered, heat-treated and cast into a solid hub. Many more cuts per wheel, quicker cutting, practically no burr . . . And thousands of users will tell you that this steel reinforced cutter, guaranteed not to break or warp, always cuts true, twirls easily to size, stands the gaff of hard use. For a tool a good workman can take pride in, for speedier better work and less cutter wheel expense, buy the RIDGID. Ask your Supply House — today.

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You never need repair RIDGID housings

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The Break Comes at the Weakest Point

LARKIN Seamless Nipples and Plugs have no weak points!

Here are the "6 Reasons" for Larkin superiority:

1—Larkin Seamless Swaged Nipples are forged from NEW SEAMLESS full-weight pipe or casing—LEAK-PROOF!

2—Larkin Seamless Bull Plugs are pressed from NEW flat strip steel—cupped and drawn into Bull Plugs which have neither seams nor welds at side or end—LEAK PROOF! This does not mean Bull Plugs made from seamless pipe welded at one end.

3—Strength is paramount—Larkin fittings are as strong as, in fact stronger, than the lines on which they are used.

4—Exact uniformity of length—ends faced square—perfect threads, beveled for easy starting—inside edges chamfered.

5—Length is sufficient to allow ample room for pipe tongs.

6—Label shows plainly the size and thread for convenience of field men and warehouse men.

NEW HEXAGON SHAPE! In sizes one inch and smaller, Larkin Nipples and Bull Plugs can be furnished in the new Hexagon Shape, at no extra cost.

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St. Louis, U. S. A.

LARKIN PACKER CO.

CERTAINTY . . .

Certainty of making Maximum Hole — a Proven Feature of HUGHES Rock Bits . . .

Hughes Rock Bits Are "Tailor-Made" for Specific Ranges of Formations

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